

ALMANAC

XVI

PLANETARY
PHENOMENA OF
NEPTUNE IN CE

The almanac XVI contains a list of planetary phenomena of Neptune from the 1st millennium CE to the 6th millennium CE, from the 1st century CE to the 51st century CE.

Planetary Phenomena of Neptune from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 26

Attention, astronomical year style is used: The year -6 in astronomical counting style is the year 7 BCE in historical counting style.

max. Earth dist.	-6 Oct 29 j 14:50	4°M.51'35	31.30231 AU	max. Earth dist.	02 Nov 15 j 23:45	22°M.16'53	31.28021 AU
retrograde	-5 Feb 09 j 16:40	7°M.20'19		retrograde	03 Feb 27 j 07:53	24°M.45'50	
opposition	-5 Apr 29 j 17:46	5°M.58'04	1°56'29	opposition	03 May 17 j 21:57	23°M.23'20	1°41'06
min. Earth dist.	-5 Apr 30 j 07:19	5°M.57'09	29.30135 AU	min. Earth dist.	03 May 18 j 05:39	23°M.22'49	29.27840 AU
direct	-5 Jul 19 j 21:22	4°M.33'55		direct	03 Aug 06 j 17:35	21°M.59'40	
conjunction	-5 Nov 01 j 15:20	7°M.03'20	1°48'26	conjunction	03 Nov 18 j 16:30	24°M.28'31	1°33'26
minimum elong	-5 Nov 01 j 15:20	7°M.03'20	1°48'25	minimum elong	03 Nov 18 j 16:31	24°M.28'31	1°33'26
max. Earth dist.	-5 Nov 01 j 02:00	7°M.02'05	31.29817 AU	max. Earth dist.	03 Nov 18 j 08:27	24°M.27'45	31.27460 AU
retrograde	-4 Feb 12 j 01:35	9°M.30'44		retrograde	04 Feb 29 j 20:01	26°M.56'52	
opposition	-4 May 01 j 06:11	8°M.08'26	1°55'08	opposition	04 May 19 j 10:46	25°M.34'18	1°38'30
min. Earth dist.	-4 May 01 j 19:31	8°M.07'32	29.29764 AU	min. Earth dist.	04 May 19 j 17:20	25°M.33'51	29.27208 AU
direct	-4 Jul 21 j 09:01	6°M.44'20		direct	04 Aug 08 j 04:50	24°M.10'39	
max. Earth dist.	-4 Nov 02 j 11:19	9°M.12'26	31.29508 AU				
conjunction	-4 Nov 03 j 00:19	9°M.13'39	1°47'05	conjunction	04 Nov 20 j 01:44	26°M.39'24	1°30'55
minimum elong	-4 Nov 03 j 00:19	9°M.13'39	1°47'05	minimum elong	04 Nov 20 j 01:44	26°M.39'24	1°30'56
retrograde	-3 Feb 13 j 12:56	11°M.41'09		max. Earth dist.	04 Nov 19 j 19:14	26°M.38'47	31.26762 AU
opposition	-3 May 03 j 18:30	10°M.18'49	1°53'37	retrograde	05 Mar 03 j 05:10	29°M.07'52	
min. Earth dist.	-3 May 04 j 05:50	10°M.18'03	29.29496 AU	opposition	05 May 21 j 23:43	27°M.45'13	1°35'45
direct	-3 Jul 23 j 19:38	8°M.54'46		min. Earth dist.	05 May 22 j 06:22	27°M.44'46	29.26449 AU
				direct	05 Aug 10 j 17:01	26°M.21'35	
conjunction	-3 Nov 05 j 09:28	11°M.24'02	1°45'35	conjunction	05 Nov 22 j 10:52	28°M.50'13	1°28'17
minimum elong	-3 Nov 05 j 09:28	11°M.24'02	1°45'34	minimum elong	05 Nov 22 j 10:53	28°M.50'13	1°28'17
max. Earth dist.	-3 Nov 04 j 21:56	11°M.22'57	31.29281 AU	max. Earth dist.	05 Nov 22 j 04:34	28°M.49'37	31.25980 AU
retrograde	-2 Feb 15 j 23:44	13°M.51'39			05 Dec 24 j 10:21	0°M.	
opposition	-2 May 06 j 06:56	12°M.29'17	1°51'55	retrograde	06 Mar 05 j 16:21	1°M.18'47	
min. Earth dist.	-2 May 06 j 18:23	12°M.28'31	29.29305 AU		06 May 22 j 01:29	30°M.	
direct	-2 Jul 26 j 05:04	11°M.05'19		opposition	06 May 24 j 12:21	29°M.56'02	1°32'52
				min. Earth dist.	06 May 24 j 17:16	29°M.55'42	29.25638 AU
conjunction	-2 Nov 07 j 18:32	13°M.34'30	1°43'55	direct	06 Aug 13 j 03:59	28°M.32'24	
minimum elong	-2 Nov 07 j 18:32	13°M.34'30	1°43'56		06 Oct 28 j 03:41	0°M.	
max. Earth dist.	-2 Nov 07 j 07:49	13°M.33'30	31.29122 AU				
	-2 Dec 17 j 23:30	15°M.		conjunction	06 Nov 24 j 19:59	1°M.00'56	1°25'32
retrograde	-1 Feb 18 j 11:14	16°M.02'15		minimum elong	06 Nov 24 j 20:00	1°M.00'56	1°25'32
	-1 Apr 26 j 06:16	15°M.		max. Earth dist.	06 Nov 24 j 14:55	1°M.00'27	31.25156 AU
opposition	-1 May 08 j 19:17	14°M.39'53	1°50'04	retrograde	07 Mar 08 j 02:58	3°M.29'37	
min. Earth dist.	-1 May 09 j 04:53	14°M.39'14	29.29138 AU	opposition	07 May 27 j 01:13	2°M.06'46	1°29'51
direct	-1 Jul 28 j 16:56	13°M.15'58		min. Earth dist.	07 May 27 j 06:12	2°M.06'26	29.24825 AU
	-1 Oct 20 j 21:44	15°M.		direct	07 Aug 15 j 13:54	0°M.43'09	
conjunction	-1 Nov 10 j 03:36	15°M.45'07	1°42'07	conjunction	07 Nov 27 j 05:00	3°M.11'36	1°22'39
minimum elong	-1 Nov 10 j 03:36	15°M.45'07	1°42'06	minimum elong	07 Nov 27 j 05:01	3°M.11'36	1°22'37
max. Earth dist.	-1 Nov 09 j 17:19	15°M.44'09	31.28948 AU	max. Earth dist.	07 Nov 27 j 01:05	3°M.11'14	31.24375 AU
retrograde	00 Feb 20 j 23:30	18°M.13'00		retrograde	08 Mar 09 j 14:27	5°M.40'24	
opposition	00 May 10 j 07:52	16°M.50'36	1°48'04	opposition	08 May 28 j 13:56	4°M.17'29	1°26'42
min. Earth dist.	00 May 10 j 17:34	16°M.49'57	29.28953 AU	min. Earth dist.	08 May 28 j 16:43	4°M.17'18	29.24069 AU
direct	00 Jul 30 j 04:13	15°M.26'46		direct	08 Aug 17 j 01:51	2°M.53'54	
conjunction	00 Nov 11 j 12:49	17°M.55'51	1°40'09	conjunction	08 Nov 28 j 14:04	5°M.22'16	1°19'38
minimum elong	00 Nov 11 j 12:49	17°M.55'51	1°40'10	minimum elong	08 Nov 28 j 14:04	5°M.22'17	1°19'39
max. Earth dist.	00 Nov 11 j 03:57	17°M.55'01	31.28743 AU	max. Earth dist.	08 Nov 28 j 10:45	5°M.21'58	31.23668 AU
retrograde	01 Feb 22 j 10:59	20°M.23'51		retrograde	09 Mar 12 j 03:09	7°M.51'14	
opposition	01 May 12 j 20:33	19°M.01'26	1°45'54	opposition	09 May 31 j 02:51	6°M.28'16	1°23'26
min. Earth dist.	01 May 13 j 05:01	19°M.00'52	29.28697 AU	min. Earth dist.	09 May 31 j 05:17	6°M.28'06	29.23416 AU
direct	01 Aug 01 j 17:25	17°M.37'41		direct	09 Aug 19 j 12:23	5°M.04'43	
conjunction	01 Nov 13 j 21:53	20°M.06'41	1°38'03	conjunction	09 Nov 30 j 23:09	7°M.33'03	1°16'31
minimum elong	01 Nov 13 j 21:53	20°M.06'41	1°38'02	minimum elong	09 Nov 30 j 23:09	7°M.33'03	1°16'30
max. Earth dist.	01 Nov 13 j 12:49	20°M.05'50	31.28443 AU	max. Earth dist.	09 Nov 30 j 21:46	7°M.32'55	31.23065 AU
retrograde	02 Feb 24 j 22:27	22°M.34'50		retrograde	10 Mar 14 j 14:59	10°M.02'10	
opposition	02 May 15 j 09:18	21°M.12'22	1°43'34	opposition	10 Jun 02 j 15:39	8°M.39'09	1°20'02
min. Earth dist.	02 May 15 j 17:25	21°M.11'49	29.28343 AU	min. Earth dist.	10 Jun 02 j 16:25	8°M.39'06	29.22837 AU
direct	02 Aug 04 j 03:58	19°M.48'39		direct	10 Aug 22 j 00:49	7°M.15'41	
conjunction	02 Nov 16 j 07:16	22°M.17'36	1°35'49	conjunction	10 Dec 03 j 08:14	9°M.43'59	1°13'17
minimum elong	02 Nov 16 j 07:16	22°M.17'36	1°35'49	minimum elong	10 Dec 03 j 08:14	9°M.43'59	1°13'17

max. Earth dist.	10 Dec 03 j 06:55	9° $\overline{2}$ 43'51	31.22526 AU	min. Earth dist.	19 Jun 23 j 06:57	28° $\overline{2}$ 24'24	29.15674 AU
retrograde	11 Mar 17 j 03:14	12° $\overline{2}$ 13'16		direct	19 Sep 11 j 06:40	27° $\overline{2}$ 00'49	
opposition	11 Jun 05 j 04:25	10° $\overline{2}$ 50'14	1°16'31				
min. Earth dist.	11 Jun 05 j 04:30	10° $\overline{2}$ 50'14	29.22321 AU	conjunction	19 Dec 22 j 21:04	29° $\overline{2}$ 28'39	0°39'53
direct	11 Aug 24 j 10:47	9° $\overline{2}$ 26'50		minimum elong	19 Dec 22 j 21:04	29° $\overline{2}$ 28'39	0°39'52
				max. Earth dist.	19 Dec 23 j 02:35	29° $\overline{2}$ 29'10	31.15087 AU
conjunction	11 Dec 05 j 17:31	11° $\overline{2}$ 55'07	1°09'56		20 Jan 05 j 17:53	0° $\overline{2}$	
minimum elong	11 Dec 05 j 17:31	11° $\overline{2}$ 55'07	1°09'55	retrograde	20 Apr 05 j 13:05	1° $\overline{2}$ 59'17	
max. Earth dist.	11 Dec 05 j 18:13	11° $\overline{2}$ 55'11	31.22022 AU	opposition	20 Jun 25 j 02:05	0° $\overline{2}$ 35'39	0°40'25
retrograde	12 Mar 18 j 13:56	14° $\overline{2}$ 24'34		min. Earth dist.	20 Jun 24 j 19:21	0° $\overline{2}$ 36'06	29.14548 AU
opposition	12 Jun 06 j 17:26	13° $\overline{2}$ 01'31	1°12'53		20 Jul 17 j 17:25	30° \overline{R} $\overline{2}$	
min. Earth dist.	12 Jun 06 j 16:41	13° $\overline{2}$ 01'34	29.21808 AU	direct	20 Sep 12 j 17:14	29° $\overline{2}$ 12'28	
direct	12 Aug 26 j 00:12	11° $\overline{2}$ 38'13			20 Nov 05 j 21:03	0° $\overline{2}$	
conjunction	12 Dec 07 j 02:36	14° $\overline{2}$ 06'27	1°06'29	conjunction	20 Dec 24 j 06:36	1° $\overline{2}$ 40'14	0°35'48
minimum elong	12 Dec 07 j 02:36	14° $\overline{2}$ 06'27	1°06'29	minimum elong	20 Dec 24 j 06:36	1° $\overline{2}$ 40'14	0°35'49
max. Earth dist.	12 Dec 07 j 03:12	14° $\overline{2}$ 06'30	31.21511 AU	max. Earth dist.	20 Dec 24 j 14:15	1° $\overline{2}$ 40'57	31.13992 AU
retrograde	13 Mar 21 j 03:26	16° $\overline{2}$ 36'05		retrograde	21 Apr 08 j 00:45	4° $\overline{2}$ 11'00	
opposition	13 Jun 09 j 06:28	15° $\overline{2}$ 13'01	1°09'08	opposition	21 Jun 27 j 15:09	2° $\overline{2}$ 47'16	0°36'02
min. Earth dist.	13 Jun 09 j 04:24	15° $\overline{2}$ 13'10	29.21273 AU	min. Earth dist.	21 Jun 27 j 07:24	2° $\overline{2}$ 47'47	29.13492 AU
direct	13 Aug 28 j 11:19	13° $\overline{2}$ 49'47		direct	21 Sep 15 j 06:37	1° $\overline{2}$ 24'05	
conjunction	13 Dec 09 j 12:05	16° $\overline{2}$ 18'00	1°02'55	conjunction	21 Dec 26 j 16:09	3° $\overline{2}$ 51'48	0°31'41
minimum elong	13 Dec 09 j 12:05	16° $\overline{2}$ 18'00	1°02'55	minimum elong	21 Dec 26 j 16:09	3° $\overline{2}$ 51'48	0°31'40
max. Earth dist.	13 Dec 09 j 14:12	16° $\overline{2}$ 18'12	31.20934 AU	max. Earth dist.	21 Dec 26 j 23:52	3° $\overline{2}$ 52'32	31.12995 AU
retrograde	14 Mar 23 j 13:12	18° $\overline{2}$ 47'49		retrograde	22 Apr 10 j 14:25	6° $\overline{2}$ 22'43	
opposition	14 Jun 11 j 19:28	17° $\overline{2}$ 24'43	1°05'17	opposition	22 Jun 30 j 04:00	4° $\overline{2}$ 58'55	0°31'35
min. Earth dist.	14 Jun 11 j 17:33	17° $\overline{2}$ 24'51	29.20648 AU	min. Earth dist.	22 Jun 29 j 18:43	4° $\overline{2}$ 59'32	29.12546 AU
direct	14 Aug 30 j 23:02	16° $\overline{2}$ 01'33		direct	22 Sep 17 j 17:35	3° $\overline{2}$ 35'45	
conjunction	14 Dec 11 j 21:30	18° $\overline{2}$ 29'43	0°59'17	conjunction	22 Dec 29 j 01:51	6° $\overline{2}$ 03'27	0°27'30
minimum elong	14 Dec 11 j 21:31	18° $\overline{2}$ 29'43	0°59'17	minimum elong	22 Dec 29 j 01:51	6° $\overline{2}$ 03'27	0°27'31
max. Earth dist.	14 Dec 11 j 23:44	18° $\overline{2}$ 29'55	31.20264 AU	max. Earth dist.	22 Dec 29 j 11:16	6° $\overline{2}$ 04'20	31.12087 AU
retrograde	15 Mar 26 j 00:49	20° $\overline{2}$ 59'41		retrograde	23 Apr 13 j 00:49	8° $\overline{2}$ 34'31	
opposition	15 Jun 14 j 08:29	19° $\overline{2}$ 36'33	1°01'20	opposition	23 Jul 02 j 17:04	7° $\overline{2}$ 10'40	0°27'06
min. Earth dist.	15 Jun 14 j 05:03	19° $\overline{2}$ 36'47	29.19905 AU	min. Earth dist.	23 Jul 02 j 07:32	7° $\overline{2}$ 11'19	29.11676 AU
direct	15 Sep 02 j 10:07	18° $\overline{2}$ 13'25		direct	23 Sep 20 j 05:21	5° $\overline{2}$ 47'33	
conjunction	15 Dec 14 j 06:59	20° $\overline{2}$ 41'33	0°55'33	conjunction	23 Dec 31 j 11:25	8° $\overline{2}$ 15'13	0°23'17
minimum elong	15 Dec 14 j 06:59	20° $\overline{2}$ 41'33	0°55'32	minimum elong	23 Dec 31 j 11:25	8° $\overline{2}$ 15'13	0°23'16
max. Earth dist.	15 Dec 14 j 09:56	20° $\overline{2}$ 41'50	31.19442 AU	max. Earth dist.	23 Dec 31 j 21:29	8° $\overline{2}$ 16'10	31.11263 AU
retrograde	16 Mar 27 j 12:00	23° $\overline{2}$ 11'41		retrograde	24 Apr 14 j 13:15	10° $\overline{2}$ 46'28	
opposition	16 Jun 15 j 21:46	21° $\overline{2}$ 48'29	0°57'18	opposition	24 Jul 04 j 06:06	9° $\overline{2}$ 22'35	0°22'33
min. Earth dist.	16 Jun 15 j 18:46	21° $\overline{2}$ 48'41	29.19010 AU	min. Earth dist.	24 Jul 03 j 18:42	9° $\overline{2}$ 23'21	29.10874 AU
direct	16 Sep 03 j 20:08	20° $\overline{2}$ 25'22		direct	24 Sep 21 j 16:45	7° $\overline{2}$ 59'30	
conjunction	16 Dec 15 j 16:35	22° $\overline{2}$ 53'25	0°51'44	conjunction	25 Jan 01 j 21:12	10° $\overline{2}$ 27'11	0°19'01
minimum elong	16 Dec 15 j 16:35	22° $\overline{2}$ 53'25	0°51'45	minimum elong	25 Jan 01 j 21:12	10° $\overline{2}$ 27'11	0°19'02
max. Earth dist.	16 Dec 15 j 20:20	22° $\overline{2}$ 53'47	31.18488 AU	max. Earth dist.	25 Jan 02 j 08:14	10° $\overline{2}$ 28'13	31.10473 AU
retrograde	17 Mar 29 j 23:55	25° $\overline{2}$ 23'42		retrograde	25 Apr 17 j 01:06	12° $\overline{2}$ 58'37	
opposition	17 Jun 18 j 10:50	24° $\overline{2}$ 00'24	0°53'11	opposition	25 Jul 06 j 19:14	11° $\overline{2}$ 34'42	0°17'59
min. Earth dist.	17 Jun 18 j 06:08	24° $\overline{2}$ 00'43	29.17979 AU	min. Earth dist.	25 Jul 06 j 08:08	11° $\overline{2}$ 35'27	29.10096 AU
direct	17 Sep 06 j 08:20	22° $\overline{2}$ 37'17		direct	25 Sep 24 j 02:45	10° $\overline{2}$ 11'41	
conjunction	17 Dec 18 j 02:03	25° $\overline{2}$ 05'15	0°47'51	conjunction	26 Jan 04 j 07:10	12° $\overline{2}$ 39'21	0°14'44
minimum elong	17 Dec 18 j 02:03	25° $\overline{2}$ 05'15	0°47'50	minimum elong	26 Jan 04 j 07:10	12° $\overline{2}$ 39'21	0°14'43
max. Earth dist.	17 Dec 18 j 05:50	25° $\overline{2}$ 05'37	31.17401 AU	behind sun begin	26 Jan 04 j 04:21	12° $\overline{2}$ 39'06	
retrograde	18 Apr 01 j 12:38	27° $\overline{2}$ 35'40		behind sun end	26 Jan 04 j 09:58	12° $\overline{2}$ 39'36	
opposition	18 Jun 21 j 00:01	26° $\overline{2}$ 12'15	0°49'00	max. Earth dist.	26 Jan 04 j 19:16	12° $\overline{2}$ 40'29	31.09694 AU
min. Earth dist.	18 Jun 20 j 19:29	26° $\overline{2}$ 12'34	29.16849 AU	retrograde	26 Apr 19 j 13:24	15° $\overline{2}$ 10'58	
direct	18 Sep 08 j 18:36	24° $\overline{2}$ 49'06		opposition	26 Jul 09 j 08:15	13° $\overline{2}$ 47'01	0°13'22
conjunction	18 Dec 20 j 11:38	27° $\overline{2}$ 17'00	0°43'54	min. Earth dist.	26 Jul 08 j 19:28	13° $\overline{2}$ 47'54	29.09289 AU
minimum elong	18 Dec 20 j 11:39	27° $\overline{2}$ 17'00	0°43'54	direct	26 Sep 26 j 14:25	12° $\overline{2}$ 24'03	
max. Earth dist.	18 Dec 20 j 17:08	27° $\overline{2}$ 17'32	31.16246 AU	conjunction	27 Jan 06 j 17:08	14° $\overline{2}$ 51'44	0°10'25
retrograde	19 Apr 04 j 00:11	29° $\overline{2}$ 47'31		minimum elong	27 Jan 06 j 17:08	14° $\overline{2}$ 51'44	0°10'25
opposition	19 Jun 23 j 12:56	28° $\overline{2}$ 24'00	0°44'44	behind sun begin	27 Jan 06 j 12:04	14° $\overline{2}$ 51'16	

behind sun end	27 Jan 06 j 22:13	14°☾52'12		opposition	33 Jul 25 j 03:32	29°☾16'11	0°-19'-4
max. Earth dist.	27 Jan 07 j 05:07	14°☾52'51	31.08850 AU	direct	33 Oct 11 j 22:30	27°☾53'09	
retrograde	27 Apr 22 j 02:24	17°☾23'33			34 Jan 12 j 13:57	0°☾	
opposition	27 Jul 11 j 21:24	15°☾59'34	0°08'44				
min. Earth dist.	27 Jul 11 j 08:57	16°☾00'24	29.08413 AU	conjunction	34 Jan 21 j 17:27	0°☾20'46	0°-19'-58
direct	27 Sep 28 j 23:51	14°☾36'37		minimum elong	34 Jan 21 j 17:27	0°☾20'46	0°19'59
				max. Earth dist.	34 Jan 22 j 10:19	0°☾22'22	31.00956 AU
conjunction	28 Jan 09 j 03:27	17°☾04'19	0°06'06	retrograde	34 May 07 j 20:20	2°☾53'33	
minimum elong	28 Jan 09 j 03:26	17°☾04'19	0°06'05	opposition	34 Jul 27 j 16:28	1°☾28'58	0°-23'-38
behind sun begin	28 Jan 08 j 21:20	17°☾03'46		min. Earth dist.	34 Jul 26 j 23:45	1°☾30'07	29.00484 AU
behind sun end	28 Jan 09 j 09:32	17°☾04'52		direct	34 Oct 14 j 09:17	0°☾05'56	
max. Earth dist.	28 Jan 09 j 16:52	17°☾05'35	31.07925 AU				
retrograde	28 Apr 23 j 14:49	19°☾36'18		conjunction	35 Jan 24 j 03:58	2°☾33'33	0°-24'-14
opposition	28 Jul 13 j 10:34	18°☾12'16	0°04'06	minimum elong	35 Jan 24 j 03:58	2°☾33'33	0°24'14
min. Earth dist.	28 Jul 12 j 20:58	18°☾13'11	29.07425 AU	max. Earth dist.	35 Jan 24 j 22:06	2°☾35'15	30.99999 AU
direct	28 Sep 30 j 11:17	16°☾49'20		retrograde	35 May 10 j 07:46	5°☾06'27	
				min. Earth dist.	35 Jul 29 j 10:36	3°☾43'07	28.99586 AU
conjunction	29 Jan 10 j 13:36	19°☾17'02	0°01'44	opposition	35 Jul 30 j 05:13	3°☾41'50	0°-28'-12
minimum elong	29 Jan 10 j 13:36	19°☾17'02	0°01'45	direct	35 Oct 16 j 21:01	2°☾18'48	
behind sun begin	29 Jan 10 j 07:11	19°☾16'27					
behind sun end	29 Jan 10 j 20:00	19°☾17'37		conjunction	36 Jan 26 j 14:31	4°☾46'26	0°-28'-28
max. Earth dist.	29 Jan 11 j 02:29	19°☾18'15	31.06880 AU	minimum elong	36 Jan 26 j 14:31	4°☾46'26	0°28'29
retrograde	29 Apr 26 j 04:50	21°☾49'11		max. Earth dist.	36 Jan 27 j 08:43	4°☾48'09	30.99158 AU
desc. node	29 Jun 02 j 01:24	21°☾28'23		retrograde	36 May 11 j 20:10	7°☾19'30	
opposition	29 Jul 15 j 23:47	20°☾25'04	0°00'-32	opposition	36 Jul 31 j 18:12	5°☾54'50	0°-32'-42
min. Earth dist.	29 Jul 15 j 10:06	20°☾26'00	29.06325 AU	min. Earth dist.	36 Jul 30 j 23:41	5°☾56'06	28.98810 AU
direct	29 Oct 02 j 21:41	19°☾02'08		direct	36 Oct 18 j 06:11	4°☾31'50	
conjunction	30 Jan 13 j 00:04	21°☾29'49	0°-2'-43	conjunction	37 Jan 28 j 01:17	6°☾59'29	0°-32'-40
minimum elong	30 Jan 13 j 00:04	21°☾29'49	0°02'44	minimum elong	37 Jan 28 j 01:17	6°☾59'29	0°32'40
behind sun begin	30 Jan 12 j 17:40	21°☾29'14		max. Earth dist.	37 Jan 28 j 21:15	7°☾01'22	30.98426 AU
behind sun end	30 Jan 13 j 06:28	21°☾30'24		retrograde	37 May 14 j 08:34	9°☾32'42	
max. Earth dist.	30 Jan 13 j 14:26	21°☾31'10	31.05718 AU	min. Earth dist.	37 Aug 02 j 11:14	8°☾09'22	28.98108 AU
retrograde	30 Apr 28 j 17:35	24°☾02'06		opposition	37 Aug 03 j 07:01	8°☾08'00	0°-37'-11
opposition	30 Jul 18 j 12:42	22°☾37'53	0°-5'-11	direct	37 Oct 20 j 17:09	6°☾45'01	
min. Earth dist.	30 Jul 17 j 22:37	22°☾38'51	29.05112 AU				
direct	30 Oct 05 j 10:52	21°☾14'56		conjunction	38 Jan 30 j 12:09	9°☾12'42	0°-36'-49
				minimum elong	38 Jan 30 j 12:08	9°☾12'42	0°36'51
conjunction	31 Jan 15 j 10:22	23°☾42'36	0°-7'-3	max. Earth dist.	38 Jan 31 j 07:40	9°☾14'33	30.97749 AU
minimum elong	31 Jan 15 j 10:22	23°☾42'36	0°07'04	retrograde	38 May 16 j 22:39	11°☾46'05	
behind sun begin	31 Jan 15 j 04:25	23°☾42'04		opposition	38 Aug 05 j 19:48	10°☾21'22	0°-41'-36
behind sun end	31 Jan 15 j 16:18	23°☾43'08		min. Earth dist.	38 Aug 04 j 23:59	10°☾22'43	28.97453 AU
max. Earth dist.	31 Jan 16 j 00:22	23°☾43'55	31.04483 AU	direct	38 Oct 23 j 03:03	8°☾58'24	
retrograde	31 May 01 j 07:47	26°☾15'00					
min. Earth dist.	31 Jul 20 j 10:35	24°☾51'43	29.03865 AU	conjunction	39 Feb 01 j 23:16	11°☾26'08	0°-40'-56
opposition	31 Jul 21 j 01:42	24°☾50'41	0°-9'-50	minimum elong	39 Feb 01 j 23:16	11°☾26'08	0°40'56
direct	31 Oct 07 j 22:00	23°☾27'42		max. Earth dist.	39 Feb 02 j 20:19	11°☾28'07	30.97082 AU
				retrograde	39 May 19 j 11:41	13°☾59'39	
conjunction	32 Jan 17 j 20:36	25°☾55'20	0°-11'-22	opposition	39 Aug 08 j 08:41	12°☾34'55	0°-45'-57
minimum elong	32 Jan 17 j 20:37	25°☾55'20	0°11'24	min. Earth dist.	39 Aug 07 j 12:34	12°☾36'18	28.96774 AU
behind sun begin	32 Jan 17 j 15:53	25°☾54'55		direct	39 Oct 25 j 14:57	11°☾11'59	
behind sun end	32 Jan 18 j 01:20	25°☾55'46					
max. Earth dist.	32 Jan 18 j 12:04	25°☾56'48	31.03229 AU	conjunction	40 Feb 04 j 10:19	13°☾39'45	0°-44'-59
retrograde	32 May 02 j 18:49	28°☾27'52		minimum elong	40 Feb 04 j 10:19	13°☾39'45	0°45'00
opposition	32 Jul 22 j 14:45	27°☾03'27	0°-14'-27	max. Earth dist.	40 Feb 05 j 06:47	13°☾41'41	30.96382 AU
min. Earth dist.	32 Jul 21 j 23:32	27°☾04'29	29.02637 AU		40 Mar 12 j 13:06	15°☾	
direct	32 Oct 09 j 10:14	25°☾40'26		retrograde	40 May 21 j 02:27	16°☾13'25	
					40 Aug 02 j 23:46	15°☾	
conjunction	33 Jan 19 j 07:01	28°☾08'03	0°-15'-40	opposition	40 Aug 09 j 21:38	14°☾48'38	0°-50'-15
minimum elong	33 Jan 19 j 07:00	28°☾08'03	0°15'41	min. Earth dist.	40 Aug 09 j 00:55	14°☾50'04	28.96042 AU
behind sun begin	33 Jan 19 j 05:22	28°☾07'54		direct	40 Oct 27 j 01:26	13°☾25'42	
behind sun end	33 Jan 19 j 08:39	28°☾08'12			41 Jan 12 j 20:59	15°☾	
max. Earth dist.	33 Jan 19 j 23:03	28°☾09'34	31.02046 AU				
	33 Mar 15 j 13:20	0°☾		conjunction	41 Feb 05 j 21:47	15°☾53'31	0°-48'-58
retrograde	33 May 05 j 08:09	0°☾40'41		minimum elong	41 Feb 05 j 21:47	15°☾53'31	0°48'58
	33 Jun 27 j 01:28	30°☾		max. Earth dist.	41 Feb 06 j 19:01	15°☾55'31	30.95586 AU
min. Earth dist.	33 Jul 24 j 10:37	29°☾17'21	29.01505 AU	retrograde	41 May 23 j 15:16	18°☾27'18	

opposition	41 Aug 12 j 10:30	17° 00 '28	0°-54'-29	opposition	49 Aug 30 j 15:15	4° 00 '53'49	-1°-24'-51
min. Earth dist.	41 Aug 11 j 14:21	17° 00 '03'51	28.95198 AU	min. Earth dist.	49 Aug 29 j 16:02	4° 00 '55'25	28.88471 AU
direct	41 Oct 29 j 13:39	15° 00 '39'31		direct	49 Nov 16 j 06:32	3° 00 '30'41	
conjunction	42 Feb 08 j 09:19	18° 00 '07'21	0°-52'-52	conjunction	50 Feb 26 j 07:17	5° 00 '58'50	-1°-20'-53
minimum elong	42 Feb 08 j 09:19	18° 00 '07'21	0°52'54	minimum elong	50 Feb 26 j 07:17	5° 00 '58'50	1°20'54
max. Earth dist.	42 Feb 09 j 06:22	18° 00 '09'21	30.94693 AU	max. Earth dist.	50 Feb 27 j 07:44	6° 00 '01'09	30.88155 AU
retrograde	42 May 26 j 06:12	20° 00 '41'14		retrograde	50 Jun 13 j 13:36	8° 00 '33'28	
opposition	42 Aug 14 j 23:18	19° 00 '16'20	0°-58'-37	min. Earth dist.	50 Sep 01 j 04:59	7° 00 '09'49	28.88031 AU
min. Earth dist.	42 Aug 14 j 02:11	19° 00 '17'48	28.94251 AU	opposition	50 Sep 02 j 03:44	7° 00 '08'14	-1°-28'-8
direct	42 Nov 01 j 02:20	17° 00 '53'22		direct	50 Nov 18 j 18:28	5° 00 '45'08	
conjunction	43 Feb 10 j 20:44	20° 00 '21'13	0°-56'-42	conjunction	51 Feb 28 j 19:26	8° 00 '13'22	-1°-23'-53
minimum elong	43 Feb 10 j 20:44	20° 00 '21'13	0°56'43	minimum elong	51 Feb 28 j 19:26	8° 00 '13'22	1°23'54
max. Earth dist.	43 Feb 11 j 17:56	20° 00 '23'13	30.93690 AU	max. Earth dist.	51 Mar 01 j 19:47	8° 00 '15'40	30.87742 AU
retrograde	43 May 28 j 18:41	22° 00 '55'11		retrograde	51 Jun 16 j 05:28	10° 00 '48'06	
opposition	43 Aug 17 j 12:11	21° 00 '30'12	-1°-2'-40	opposition	51 Sep 04 j 16:09	9° 00 '22'53	-1°-31'-17
min. Earth dist.	43 Aug 16 j 15:55	21° 00 '31'36	28.93227 AU	min. Earth dist.	51 Sep 03 j 16:32	9° 00 '24'31	28.87628 AU
direct	43 Nov 03 j 13:49	20° 00 '07'11		direct	51 Nov 21 j 07:04	7° 00 '59'47	
conjunction	44 Feb 13 j 08:21	22° 00 '35'02	-1°00'-27	conjunction	52 Mar 02 j 07:53	10° 00 '28'07	-1°-26'-46
minimum elong	44 Feb 13 j 08:21	22° 00 '35'02	1°00'29	minimum elong	52 Mar 02 j 07:53	10° 00 '28'07	1°26'48
max. Earth dist.	44 Feb 14 j 06:19	22° 00 '37'07	30.92660 AU	max. Earth dist.	52 Mar 03 j 08:12	10° 00 '30'25	30.87319 AU
retrograde	44 May 30 j 07:06	25° 00 '09'05		retrograde	52 Jun 17 j 18:37	13° 00 '02'57	
min. Earth dist.	44 Aug 18 j 03:12	23° 00 '45'31	28.92201 AU	min. Earth dist.	52 Sep 05 j 06:17	11° 00 '39'18	28.87196 AU
opposition	44 Aug 19 j 00:48	23° 00 '44'02	-1°-6'-38	opposition	52 Sep 06 j 04:40	11° 00 '37'44	-1°-34'-18
direct	44 Nov 05 j 02:12	22° 00 '20'58		direct	52 Nov 22 j 18:18	10° 00 '14'39	
conjunction	45 Feb 14 j 19:52	24° 00 '48'49	-1°-4'-7	conjunction	53 Mar 04 j 20:36	12° 00 '43'04	-1°-29'-32
minimum elong	45 Feb 14 j 19:52	24° 00 '48'49	1°04'08	minimum elong	53 Mar 04 j 20:36	12° 00 '43'04	1°29'32
max. Earth dist.	45 Feb 15 j 17:29	24° 00 '50'52	30.91645 AU	max. Earth dist.	53 Mar 05 j 21:06	12° 00 '45'23	30.86852 AU
retrograde	45 Jun 01 j 19:39	27° 00 '22'57		retrograde	53 Jun 20 j 08:47	15° 00 '17'58	
opposition	45 Aug 21 j 13:30	25° 00 '57'50	-1°-10'-30	opposition	53 Sep 08 j 17:02	13° 00 '52'44	-1°-37'-11
min. Earth dist.	45 Aug 20 j 16:26	25° 00 '59'17	28.91231 AU	min. Earth dist.	53 Sep 07 j 17:57	13° 00 '54'21	28.86679 AU
direct	45 Nov 07 j 12:11	24° 00 '34'44		direct	53 Nov 25 j 07:04	12° 00 '29'38	
conjunction	46 Feb 17 j 07:41	27° 00 '02'37	-1°-7'-40	conjunction	54 Mar 07 j 09:20	14° 00 '58'06	-1°-32'-9
minimum elong	46 Feb 17 j 07:41	27° 00 '02'37	1°07'42	minimum elong	54 Mar 07 j 09:20	14° 00 '58'06	1°32'10
max. Earth dist.	46 Feb 18 j 06:43	27° 00 '04'48	30.90710 AU	max. Earth dist.	54 Mar 08 j 08:40	15° 00 '00'19	30.86270 AU
retrograde	46 Jun 04 j 07:47	29° 00 '36'50		retrograde	54 Jun 22 j 22:50	17° 00 '33'03	
min. Earth dist.	46 Aug 23 j 03:39	28° 00 '13'12	28.90350 AU	min. Earth dist.	54 Sep 10 j 07:36	16° 00 '09'19	28.86052 AU
opposition	46 Aug 24 j 01:50	28° 00 '11'39	-1°-14'-15	opposition	54 Sep 11 j 05:27	16° 00 '07'48	-1°-39'-54
direct	46 Nov 09 j 23:35	26° 00 '48'32		direct	54 Nov 27 j 18:02	14° 00 '44'39	
conjunction	47 Feb 19 j 19:20	29° 00 '16'28	-1°-11'-8	conjunction	55 Mar 09 j 22:14	17° 00 '13'11	-1°-34'-38
minimum elong	47 Feb 19 j 19:20	29° 00 '16'28	1°11'09	minimum elong	55 Mar 09 j 22:14	17° 00 '13'10	1°34'38
max. Earth dist.	47 Feb 20 j 17:50	29° 00 '18'35	30.89888 AU	max. Earth dist.	55 Mar 10 j 22:14	17° 00 '15'27	30.85592 AU
	47 Mar 11 j 05:28	0° 00 '		retrograde	55 Jun 25 j 11:08	19° 00 '48'08	
retrograde	47 Jun 06 j 21:09	1° 00 '50'47		opposition	55 Sep 13 j 17:45	18° 00 '22'50	-1°-42'-29
opposition	47 Aug 26 j 14:25	0° 00 '25'34	-1°-17'-54	min. Earth dist.	55 Sep 12 j 19:25	18° 00 '24'23	28.85328 AU
min. Earth dist.	47 Aug 25 j 16:12	0° 00 '27'06	28.89605 AU	direct	55 Nov 30 j 06:37	16° 00 '59'38	
	47 Sep 11 j 04:31	30° 00 'R					
direct	47 Nov 12 j 09:28	29° 00 '02'25		conjunction	56 Mar 11 j 10:55	19° 00 '28'10	-1°-36'-58
	48 Jan 10 j 13:52	0° 00 '		minimum elong	56 Mar 11 j 10:55	19° 00 '28'10	1°36'59
				max. Earth dist.	56 Mar 12 j 09:43	19° 00 '30'19	30.84842 AU
conjunction	48 Feb 22 j 07:09	1° 00 '30'25	-1°-14'-30	retrograde	56 Jun 26 j 23:41	22° 00 '03'08	
minimum elong	48 Feb 22 j 07:09	1° 00 '30'25	1°14'31	min. Earth dist.	56 Sep 14 j 08:27	20° 00 '39'17	28.84570 AU
max. Earth dist.	48 Feb 23 j 07:15	1° 00 '32'41	30.89196 AU	opposition	56 Sep 15 j 06:04	20° 00 '37'46	-1°-44'-54
retrograde	48 Jun 08 j 09:35	4° 00 '04'50		direct	56 Dec 01 j 17:10	19° 00 '14'29	
min. Earth dist.	48 Aug 27 j 04:16	2° 00 '41'10	28.88976 AU				
opposition	48 Aug 28 j 02:55	2° 00 '39'36	-1°-21'-26	conjunction	57 Mar 13 j 23:57	21° 00 '43'03	-1°-39'-9
direct	48 Nov 13 j 20:53	1° 00 '16'28		minimum elong	57 Mar 13 j 23:56	21° 00 '43'03	1°39'10
				max. Earth dist.	57 Mar 14 j 23:43	21° 00 '45'18	30.84075 AU
conjunction	49 Feb 23 j 19:06	3° 00 '44'31	-1°-17'-45	retrograde	57 Jun 29 j 11:01	24° 00 '18'01	
minimum elong	49 Feb 23 j 19:06	3° 00 '44'31	1°17'45	opposition	57 Sep 17 j 18:02	22° 00 '52'35	-1°-47'-9
max. Earth dist.	49 Feb 24 j 18:39	3° 00 '46'45	30.88631 AU	min. Earth dist.	57 Sep 16 j 20:31	22° 00 '54'05	28.83818 AU
retrograde	49 Jun 11 j 00:16	6° 00 '19'03		direct	57 Dec 04 j 04:44	21° 00 '29'13	

conjunction	58 Mar 16 j 12:51	23° ✕ 57'49	-1°-41'-12	conjunction	66 Apr 03 j 23:28	11° ° 57'06	-1°-51'-44
minimum elong	58 Mar 16 j 12:50	23° ✕ 57'49	1°41'13	minimum elong	66 Apr 03 j 23:28	11° ° 57'06	1°51'45
max. Earth dist.	58 Mar 17 j 11:36	23° ✕ 59'58	30.83356 AU	max. Earth dist.	66 Apr 04 j 21:35	11° ° 59'10	30.81388 AU
retrograde	58 Jul 02 j 01:08	26° ✕ 32'46		retrograde	66 Jul 20 j 11:59	14° ° 32'06	
min. Earth dist.	58 Sep 19 j 08:20	25° ✕ 08'49	28.83150 AU	min. Earth dist.	66 Oct 07 j 09:16	13° ° 08'06	28.81444 AU
opposition	58 Sep 20 j 06:04	25° ✕ 07'17	-1°-49'-15	opposition	66 Oct 08 j 04:33	13° ° 06'45	-1°-59'-49
direct	58 Dec 06 j 14:56	23° ✕ 43'51		direct	66 Dec 24 j 12:18	11° ° 43'10	
conjunction	59 Mar 19 j 01:42	26° ✕ 12'30	-1°-43'-5	conjunction	67 Apr 06 j 13:07	14° ° 12'33	-1°-52'-18
minimum elong	59 Mar 19 j 01:42	26° ✕ 12'30	1°43'05	minimum elong	67 Apr 06 j 13:07	14° ° 12'33	1°52'18
max. Earth dist.	59 Mar 20 j 01:14	26° ✕ 14'43	30.82726 AU	max. Earth dist.	67 Apr 07 j 09:30	14° ° 14'28	30.81214 AU
retrograde	59 Jul 04 j 12:52	28° ✕ 47'27		retrograde	67 Jul 23 j 01:50	16° ° 47'32	
opposition	59 Sep 22 j 18:06	27° ✕ 21'55	-1°-51'-11	opposition	67 Oct 10 j 16:18	15° ° 22'11	-2°00'-19
min. Earth dist.	59 Sep 21 j 20:51	27° ✕ 23'25	28.82585 AU	min. Earth dist.	67 Oct 09 j 21:26	15° ° 23'31	28.81233 AU
direct	59 Dec 09 j 03:01	25° ✕ 58'26		direct	67 Dec 26 j 22:40	13° ° 58'33	
conjunction	60 Mar 20 j 14:45	28° ✕ 27'08	-1°-44'-48	conjunction	68 Apr 08 j 03:06	16° ° 28'00	-1°-52'-41
minimum elong	60 Mar 20 j 14:45	28° ✕ 27'08	1°44'50	minimum elong	68 Apr 08 j 03:06	16° ° 28'00	1°52'43
max. Earth dist.	60 Mar 21 j 13:57	28° ✕ 29'19	30.82236 AU	max. Earth dist.	68 Apr 08 j 23:33	16° ° 29'56	30.80964 AU
	60 May 03 j 14:56	0° °		retrograde	68 Jul 24 j 12:49	19° ° 02'56	
retrograde	60 Jul 06 j 03:35	1° ° 02'05		min. Earth dist.	68 Oct 11 j 10:10	17° ° 38'49	28.80960 AU
	60 Sep 10 j 03:42	30° °		opposition	68 Oct 12 j 03:52	17° ° 37'34	-2°00'-39
min. Earth dist.	60 Sep 23 j 07:51	29° ✕ 38'05	28.82170 AU	direct	68 Dec 28 j 10:51	16° ° 13'52	
opposition	60 Sep 24 j 05:55	29° ✕ 36'32	-1°-52'-57				
direct	60 Dec 10 j 15:09	28° ✕ 13'00		conjunction	69 Apr 10 j 17:02	18° ° 43'23	-1°-52'-55
	61 Mar 04 j 10:41	0° °		minimum elong	69 Apr 10 j 17:02	18° ° 43'23	1°52'56
conjunction	61 Mar 23 j 03:54	0° ° 41'48	-1°-46'-22	max. Earth dist.	69 Apr 11 j 12:20	18° ° 45'12	30.80694 AU
minimum elong	61 Mar 23 j 03:54	0° ° 41'48	1°46'23	retrograde	69 Jul 27 j 02:45	21° ° 18'14	
max. Earth dist.	61 Mar 24 j 03:09	0° ° 43'59	30.81880 AU	opposition	69 Oct 14 j 15:18	19° ° 52'52	-2°00'-48
retrograde	61 Jul 08 j 16:17	3° ° 16'45		min. Earth dist.	69 Oct 13 j 21:23	19° ° 54'08	28.80690 AU
opposition	61 Sep 26 j 17:50	1° ° 51'12	-1°-54'-32	direct	69 Dec 30 j 22:59	18° ° 29'04	
min. Earth dist.	61 Sep 25 j 20:50	1° ° 52'41	28.81888 AU	conjunction	70 Apr 13 j 06:52	20° ° 58'40	-1°-52'-58
direct	61 Dec 13 j 02:10	0° ° 27'39		minimum elong	70 Apr 13 j 06:53	20° ° 58'40	1°52'59
conjunction	62 Mar 25 j 17:08	2° ° 56'32	-1°-47'-47	max. Earth dist.	70 Apr 14 j 01:53	21° ° 00'26	30.80432 AU
minimum elong	62 Mar 25 j 17:08	2° ° 56'32	1°47'48	retrograde	70 Jul 29 j 14:34	23° ° 33'25	
max. Earth dist.	62 Mar 26 j 16:40	2° ° 58'45	30.81667 AU	min. Earth dist.	70 Oct 16 j 10:14	22° ° 09'12	28.80465 AU
retrograde	62 Jul 11 j 06:56	5° ° 31'30		opposition	70 Oct 17 j 02:44	22° ° 08'02	-2°00'-46
min. Earth dist.	62 Sep 28 j 07:39	4° ° 07'31	28.81731 AU	direct	71 Jan 02 j 09:54	20° ° 44'10	
opposition	62 Sep 29 j 05:30	4° ° 05'58	-1°-55'-57	conjunction	71 Apr 15 j 20:47	23° ° 13'49	-1°-52'-51
direct	62 Dec 15 j 15:00	2° ° 42'25		minimum elong	71 Apr 15 j 20:47	23° ° 13'49	1°52'52
conjunction	63 Mar 28 j 06:24	5° ° 11'24	-1°-49'-1	max. Earth dist.	71 Apr 16 j 15:38	23° ° 15'35	30.80262 AU
minimum elong	63 Mar 28 j 06:24	5° ° 11'24	1°49'02	retrograde	71 Aug 01 j 04:51	25° ° 48'29	
max. Earth dist.	63 Mar 29 j 05:05	5° ° 13'32	30.81558 AU	opposition	71 Oct 19 j 13:56	24° ° 23'06	-2°00'-33
retrograde	63 Jul 13 j 21:21	7° ° 46'24		min. Earth dist.	71 Oct 18 j 20:50	24° ° 24'18	28.80346 AU
opposition	63 Oct 01 j 17:23	6° ° 20'54	-1°-57'-11	direct	72 Jan 04 j 23:37	22° ° 59'10	
min. Earth dist.	63 Sep 30 j 20:41	6° ° 22'22	28.81671 AU	conjunction	72 Apr 17 j 10:37	25° ° 28'53	-1°-52'-34
direct	63 Dec 18 j 01:54	4° ° 57'22		minimum elong	72 Apr 17 j 10:37	25° ° 28'53	1°52'34
conjunction	64 Mar 29 j 19:54	7° ° 26'27	-1°-50'-6	max. Earth dist.	72 Apr 18 j 04:30	25° ° 30'33	30.80202 AU
minimum elong	64 Mar 29 j 19:54	7° ° 26'27	1°50'07	retrograde	72 Aug 02 j 18:21	28° ° 03'28	
max. Earth dist.	64 Mar 30 j 19:13	7° ° 28'39	30.81525 AU	min. Earth dist.	72 Oct 20 j 09:25	26° ° 39'12	28.80361 AU
retrograde	64 Jul 15 j 10:21	10° ° 01'28		opposition	72 Oct 21 j 01:17	26° ° 38'05	-2°00'-8
min. Earth dist.	64 Oct 02 j 08:06	8° ° 37'31	28.81639 AU	direct	73 Jan 06 j 11:32	25° ° 14'06	
opposition	64 Oct 03 j 05:05	8° ° 36'02	-1°-58'-15	conjunction	73 Apr 20 j 00:42	27° ° 43'53	-1°-52'-6
direct	64 Dec 19 j 14:29	7° ° 12'30		minimum elong	73 Apr 20 j 00:42	27° ° 43'53	1°52'06
conjunction	65 Apr 01 j 09:33	9° ° 41'42	-1°-51'00	max. Earth dist.	73 Apr 20 j 19:00	27° ° 45'36	30.80291 AU
minimum elong	65 Apr 01 j 09:33	9° ° 41'42	1°51'00	retrograde	73 Jul 02 j 18:56	0° °	
max. Earth dist.	65 Apr 02 j 07:14	9° ° 43'44	30.81484 AU		73 Aug 05 j 07:03	0° ° 18'22	
retrograde	65 Jul 17 j 23:46	12° ° 16'43			73 Sep 08 j 02:42	30° °	
opposition	65 Oct 05 j 16:47	10° ° 51'20	-1°-59'-7	opposition	73 Oct 23 j 12:19	28° ° 53'01	-1°-59'-33
min. Earth dist.	65 Oct 04 j 20:58	10° ° 52'44	28.81584 AU	min. Earth dist.	73 Oct 22 j 20:03	28° ° 54'10	28.80518 AU
direct	65 Dec 22 j 00:47	9° ° 27'47		direct	74 Jan 09 j 00:34	27° ° 29'00	
				conjunction	74 Apr 22 j 14:37	29° ° 58'51	-1°-51'-28

minimum elong	74 Apr 22 j 14:37	29° Υ 58'51	1°51'29	direct	82 Jan 26 j 21:39	15° ♄ 29'47	
max. Earth dist.	74 Apr 23 j 07:30	0° ♄ 00'26	30.80532 AU				
	74 Apr 23 j 02:51	0° ♄		conjunction	82 May 11 j 09:27	18° ♄ 00'20	-1°-40'-21
retrograde	74 Aug 07 j 20:57	2° ♄ 33'16		minimum elong	82 May 11 j 09:28	18° ♄ 00'20	1°40'21
opposition	74 Oct 25 j 23:34	1° ♄ 07'57	-1°-58'-47	max. Earth dist.	82 May 11 j 20:18	18° ♄ 01'21	30.83792 AU
min. Earth dist.	74 Oct 25 j 08:06	1° ♄ 09'03	28.80838 AU	retrograde	82 Aug 26 j 01:23	20° ♄ 33'53	
	74 Dec 11 j 10:47	30° ♄		opposition	82 Nov 12 j 15:51	19° ♄ 09'01	-1°-46'-11
direct	75 Jan 11 j 11:21	29° Υ 43'55		min. Earth dist.	82 Nov 12 j 06:28	19° ♄ 09'41	28.84017 AU
	75 Feb 11 j 02:05	0° ♄		direct	83 Jan 29 j 11:07	17° ♄ 44'40	
conjunction	75 Apr 25 j 04:37	2° ♄ 13'52	-1°-50'-39	conjunction	83 May 13 j 23:38	20° ♄ 15'16	-1°-38'-15
minimum elong	75 Apr 25 j 04:38	2° ♄ 13'52	1°50'40	minimum elong	83 May 13 j 23:38	20° ♄ 15'16	1°38'16
max. Earth dist.	75 Apr 25 j 22:17	2° ♄ 15'31	30.80921 AU	max. Earth dist.	83 May 14 j 08:43	20° ♄ 16'07	30.84074 AU
retrograde	75 Aug 10 j 09:33	4° ♄ 48'12		retrograde	83 Aug 28 j 15:01	22° ♄ 48'40	
opposition	75 Oct 28 j 10:45	3° ♄ 22'58	-1°-57'-49	opposition	83 Nov 15 j 02:42	21° ♄ 23'49	-1°-43'-52
min. Earth dist.	75 Oct 27 j 19:40	3° ♄ 24'02	28.81275 AU	min. Earth dist.	83 Nov 14 j 18:30	21° ♄ 24'24	28.84330 AU
direct	76 Jan 13 j 23:31	1° ♄ 58'55		direct	84 Jan 31 j 22:48	19° ♄ 59'25	
conjunction	76 Apr 26 j 18:45	4° ♄ 28'58	-1°-49'-41	conjunction	84 May 15 j 14:08	22° ♄ 30'04	-1°-36'00
minimum elong	76 Apr 26 j 18:45	4° ♄ 28'58	1°49'41	minimum elong	84 May 15 j 14:08	22° ♄ 30'05	1°36'00
max. Earth dist.	76 Apr 27 j 10:44	4° ♄ 30'27	30.81416 AU	max. Earth dist.	84 May 15 j 23:37	22° ♄ 30'58	30.84424 AU
retrograde	76 Aug 11 j 22:42	7° ♄ 03'13		retrograde	84 Aug 30 j 03:11	25° ♄ 03'19	
opposition	76 Oct 29 j 21:45	5° ♄ 38'04	-1°-56'-41	opposition	84 Nov 16 j 13:19	23° ♄ 38'31	-1°-41'-23
min. Earth dist.	76 Oct 29 j 07:10	5° ♄ 39'06	28.81801 AU	min. Earth dist.	84 Nov 16 j 05:42	23° ♄ 39'04	28.84718 AU
direct	77 Jan 15 j 10:09	4° ♄ 14'00		direct	85 Feb 02 j 11:50	22° ♄ 14'04	
conjunction	77 Apr 29 j 09:11	6° ♄ 44'09	-1°-48'-32	conjunction	85 May 18 j 04:26	24° ♄ 44'47	-1°-33'-37
minimum elong	77 Apr 29 j 09:11	6° ♄ 44'09	1°48'33	minimum elong	85 May 18 j 04:26	24° ♄ 44'47	1°33'38
max. Earth dist.	77 Apr 30 j 01:12	6° ♄ 45'39	30.81947 AU	max. Earth dist.	85 May 18 j 12:06	24° ♄ 45'30	30.84879 AU
retrograde	77 Aug 14 j 09:41	9° ♄ 18'20		retrograde	85 Sep 01 j 15:45	27° ♄ 17'53	
opposition	77 Nov 01 j 08:56	7° ♄ 53'16	-1°-55'-22	opposition	85 Nov 19 j 00:02	25° ♄ 53'09	-1°-38'-45
min. Earth dist.	77 Oct 31 j 19:42	7° ♄ 54'12	28.82323 AU	min. Earth dist.	85 Nov 18 j 16:44	25° ♄ 53'40	28.85237 AU
direct	78 Jan 17 j 21:38	6° ♄ 29'12		direct	86 Feb 04 j 23:08	24° ♄ 28'38	
conjunction	78 May 01 j 23:28	8° ♄ 59'27	-1°-47'-13	conjunction	86 May 20 j 18:41	26° ♄ 59'26	-1°-31'-5
minimum elong	78 May 01 j 23:28	8° ♄ 59'27	1°47'13	minimum elong	86 May 20 j 18:41	26° ♄ 59'26	1°31'05
max. Earth dist.	78 May 02 j 13:51	9° ♄ 00'48	30.82459 AU	max. Earth dist.	86 May 21 j 02:43	27° ♄ 00'11	30.85459 AU
retrograde	78 Aug 16 j 23:35	11° ♄ 33'32		retrograde	86 Sep 04 j 02:18	29° ♄ 32'24	
opposition	78 Nov 03 j 20:00	10° ♄ 08'32	-1°-53'-52	opposition	86 Nov 21 j 10:45	28° ♄ 07'44	-1°-35'-58
min. Earth dist.	78 Nov 03 j 06:51	10° ♄ 09'28	28.82801 AU	min. Earth dist.	86 Nov 21 j 04:28	28° ♄ 08'11	28.85881 AU
direct	79 Jan 20 j 09:02	8° ♄ 44'26		direct	87 Feb 07 j 10:39	26° ♄ 43'13	
conjunction	79 May 04 j 13:56	11° ♄ 14'46	-1°-45'-44	conjunction	87 May 23 j 08:56	29° ♄ 14'05	-1°-28'-24
minimum elong	79 May 04 j 13:56	11° ♄ 14'46	1°45'45	minimum elong	87 May 23 j 08:56	29° ♄ 14'05	1°28'26
max. Earth dist.	79 May 05 j 03:34	11° ♄ 16'02	30.82891 AU	max. Earth dist.	87 May 23 j 15:28	29° ♄ 14'42	30.86188 AU
retrograde	79 Aug 19 j 10:49	13° ♄ 48'45			87 Jun 13 j 04:27	0° ♄	
opposition	79 Nov 06 j 07:08	12° ♄ 23'48	-1°-52'-12	retrograde	87 Sep 06 j 15:56	1° ♄ 46'55	
min. Earth dist.	79 Nov 05 j 19:56	12° ♄ 24'35	28.83191 AU	opposition	87 Nov 23 j 21:15	0° ♄ 22'21	-1°-33'-2
direct	80 Jan 22 j 19:48	10° ♄ 59'39		min. Earth dist.	87 Nov 23 j 14:48	0° ♄ 22'49	28.86667 AU
conjunction	80 May 06 j 04:29	13° ♄ 30'03	-1°-44'-5		87 Dec 07 j 03:42	30° ♄	
minimum elong	80 May 06 j 04:29	13° ♄ 30'03	1°44'06	direct	88 Feb 09 j 21:21	28° ♄ 57'49	
max. Earth dist.	80 May 06 j 17:04	13° ♄ 31'14	30.83252 AU		88 Apr 12 j 15:16	0° ♄	
	80 Jun 17 j 21:26	15° ♄		conjunction	88 May 24 j 23:21	1° ♄ 28'48	-1°-25'-36
retrograde	80 Aug 21 j 00:16	16° ♄ 03'54		minimum elong	88 May 24 j 23:21	1° ♄ 28'48	1°25'36
	80 Oct 26 j 07:04	15° ♄		max. Earth dist.	88 May 25 j 05:34	1° ♄ 29'22	30.87025 AU
opposition	80 Nov 07 j 18:06	14° ♄ 38'59	-1°-50'-21	retrograde	88 Sep 08 j 02:06	4° ♄ 01'30	
min. Earth dist.	80 Nov 07 j 06:54	14° ♄ 39'47	28.83499 AU	opposition	88 Nov 25 j 07:56	2° ♄ 37'03	-1°-29'-58
direct	81 Jan 24 j 09:44	13° ♄ 14'47		min. Earth dist.	88 Nov 25 j 03:14	2° ♄ 37'23	28.87538 AU
	81 Apr 18 j 07:31	15° ♄		direct	89 Feb 11 j 07:33	1° ♄ 12'31	
conjunction	81 May 08 j 18:57	15° ♄ 45'15	-1°-42'-18	conjunction	89 May 27 j 13:44	3° ♄ 43'35	-1°-22'-39
minimum elong	81 May 08 j 18:57	15° ♄ 45'15	1°42'19	minimum elong	89 May 27 j 13:45	3° ♄ 43'35	1°22'40
max. Earth dist.	81 May 09 j 06:00	15° ♄ 46'17	30.83529 AU	max. Earth dist.	89 May 27 j 18:59	3° ♄ 44'04	30.87931 AU
retrograde	81 Aug 23 j 12:36	18° ♄ 18'58		retrograde	89 Sep 10 j 14:29	6° ♄ 16'10	
opposition	81 Nov 10 j 05:03	16° ♄ 54'04	-1°-48'-21	opposition	89 Nov 27 j 18:25	4° ♄ 51'50	-1°-26'-45
min. Earth dist.	81 Nov 09 j 19:40	16° ♄ 54'44	28.83760 AU	min. Earth dist.	89 Nov 27 j 13:42	4° ♄ 52'10	28.88439 AU

direct	90 Feb 13 j 20:54	3°II27'17		minimum elong	98 Jun 17 j 22:05	23°II53'13	0°51'16
				max. Earth dist.	98 Jun 17 j 17:53	23°II52'50	30.94042 AU
conjunction	90 May 30 j 04:10	5°II58'27	-1°-19'-35	retrograde	98 Oct 01 j 00:03	26°II24'09	
minimum elong	90 May 30 j 04:10	5°II58'27	1°19'35	opposition	98 Dec 17 j 16:33	25°II00'17	0°-52'-43
max. Earth dist.	90 May 30 j 08:01	5°II58'49	30.88822 AU	min. Earth dist.	98 Dec 17 j 19:46	25°II00'03	28.94484 AU
retrograde	90 Sep 13 j 02:16	8°II30'55		direct	99 Mar 06 j 11:49	23°II35'13	
opposition	90 Nov 30 j 05:08	7°II06'40	-1°-23'-24				
min. Earth dist.	90 Nov 30 j 02:18	7°II06'52	28.89312 AU	conjunction	99 Jun 20 j 11:54	26°II06'44	0°-47'-20
direct	91 Feb 16 j 07:50	5°II42'06		minimum elong	99 Jun 20 j 11:55	26°II06'44	0°47'22
				max. Earth dist.	99 Jun 20 j 06:55	26°II06'16	30.94911 AU
conjunction	91 Jun 01 j 18:36	8°II13'21	-1°-16'-24	retrograde	99 Oct 03 j 10:42	28°II37'30	
minimum elong	91 Jun 01 j 18:36	8°II13'21	1°16'25	opposition	99 Dec 20 j 02:56	27°II13'43	0°-48'-29
max. Earth dist.	91 Jun 01 j 21:50	8°II13'39	30.89661 AU	min. Earth dist.	99 Dec 20 j 07:33	27°II13'23	28.95424 AU
retrograde	91 Sep 15 j 14:51	10°II45'40		direct	100 Mar 07 j 22:00	25°II48'37	
opposition	91 Dec 02 j 15:45	9°II21'30	-1°-19'-56				
min. Earth dist.	91 Dec 02 j 13:15	9°II21'40	28.90088 AU	conjunction	100 Jun 22 j 01:51	28°II20'12	0°-43'-20
direct	92 Feb 18 j 21:08	7°II56'53		minimum elong	100 Jun 22 j 01:51	28°II20'12	0°43'21
				max. Earth dist.	100 Jun 21 j 20:39	28°II19'43	30.95923 AU
conjunction	92 Jun 03 j 09:04	10°II28'12	-1°-13'-6		100 Aug 09 j 18:44	0°☾	
minimum elong	92 Jun 03 j 09:05	10°II28'12	1°13'06	retrograde	100 Oct 04 j 22:07	0°☾50'49	
max. Earth dist.	92 Jun 03 j 10:02	10°II28'18	30.90390 AU		100 Dec 01 j 15:45	30°☿II	
retrograde	92 Sep 17 j 04:07	13°II00'21		opposition	100 Dec 21 j 13:04	29°II27'08	0°-44'-10
opposition	92 Dec 04 j 02:20	11°II36'13	-1°-16'-20	min. Earth dist.	100 Dec 21 j 17:39	29°II26'49	28.96477 AU
min. Earth dist.	92 Dec 04 j 01:24	11°II36'17	28.90769 AU				
direct	93 Feb 20 j 09:34	10°II11'33					
conjunction	93 Jun 05 j 23:37	12°II42'56	-1°-9'-41				
minimum elong	93 Jun 05 j 23:37	12°II42'56	1°09'43				
max. Earth dist.	93 Jun 06 j 00:26	12°II43'00	30.91025 AU				
retrograde	93 Sep 19 j 15:44	15°II14'52					
opposition	93 Dec 06 j 12:54	13°II50'47	-1°-12'-39				
min. Earth dist.	93 Dec 06 j 12:56	13°II50'47	28.91352 AU				
direct	94 Feb 22 j 23:40	12°II26'04					
conjunction	94 Jun 08 j 13:41	14°II57'27	-1°-6'-11				
minimum elong	94 Jun 08 j 13:42	14°II57'27	1°06'11				
max. Earth dist.	94 Jun 08 j 12:21	14°II57'19	30.91589 AU				
retrograde	94 Sep 22 j 04:12	17°II29'11					
opposition	94 Dec 08 j 23:23	16°II05'08	-1°-8'-51				
min. Earth dist.	94 Dec 09 j 00:05	16°II05'05	28.91897 AU				
direct	95 Feb 25 j 11:42	14°II40'20					
conjunction	95 Jun 11 j 04:01	17°II11'44	-1°-2'-35				
minimum elong	95 Jun 11 j 04:01	17°II11'44	1°02'37				
max. Earth dist.	95 Jun 11 j 02:43	17°II11'37	30.92125 AU				
retrograde	95 Sep 24 j 14:58	19°II43'16					
opposition	95 Dec 11 j 09:44	18°II19'15	-1°-4'-57				
min. Earth dist.	95 Dec 11 j 11:51	18°II19'06	28.92431 AU				
direct	96 Feb 28 j 00:18	16°II54'21					
conjunction	96 Jun 12 j 18:08	19°II25'47	0°-58'-54				
minimum elong	96 Jun 12 j 18:08	19°II25'47	0°58'54				
max. Earth dist.	96 Jun 12 j 14:59	19°II25'29	30.92687 AU				
retrograde	96 Sep 26 j 03:39	21°II57'06					
opposition	96 Dec 12 j 20:00	20°II33'07	-1°00'-58				
min. Earth dist.	96 Dec 12 j 22:03	20°II32'58	28.93016 AU				
direct	97 Mar 01 j 12:14	19°II08'09					
conjunction	97 Jun 15 j 08:11	21°II39'36	0°-55'-7				
minimum elong	97 Jun 15 j 08:11	21°II39'36	0°55'08				
max. Earth dist.	97 Jun 15 j 04:51	21°II39'17	30.93303 AU				
retrograde	97 Sep 28 j 12:45	24°II10'43					
opposition	97 Dec 15 j 06:22	22°II46'47	0°-56'-53				
min. Earth dist.	97 Dec 15 j 10:01	22°II46'31	28.93684 AU				
direct	98 Mar 03 j 23:12	21°II21'45					
conjunction	98 Jun 17 j 22:05	23°II53'13	0°-51'-16				

direct	100 Mar 07 j 22:00	25°II48'37		max. Earth dist.	107 Jul 08 j 13:15	13°☾54'04	31.02888 AU
				retrograde	107 Oct 21 j 06:33	16°☾24'46	
conjunction	100 Jun 22 j 01:51	28°II20'12	0°-43'-20	opposition	108 Jan 06 j 13:17	15°☾01'40	0°-12'-35
minimum elong	100 Jun 22 j 01:51	28°II20'12	0°43'21	min. Earth dist.	108 Jan 07 j 00:03	15°☾00'55	29.03266 AU
max. Earth dist.	100 Jun 21 j 20:39	28°II19'43	30.95923 AU	direct	108 Mar 26 j 00:47	13°☾36'28	
	100 Aug 09 j 18:44	0°☾					
retrograde	100 Oct 04 j 22:07	0°☾50'49		conjunction	108 Jul 10 j 15:19	16°☾08'24	0°-9'-38
	100 Dec 01 j 15:45	30°RII		minimum elong	108 Jul 10 j 15:19	16°☾08'24	0°09'38
opposition	100 Dec 21 j 13:04	29°II27'08	0°-44'-10	behind sun begin	108 Jul 10 j 09:55	16°☾07'55	
min. Earth dist.	100 Dec 21 j 17:39	29°II26'49	28.96477 AU	behind sun end	108 Jul 10 j 20:44	16°☾08'53	
direct	101 Mar 10 j 10:49	28°II02'03		max. Earth dist.	108 Jul 10 j 01:47	16°☾07'09	31.03629 AU
	101 Jun 09 j 09:54	0°☾		retrograde	108 Oct 22 j 16:24	18°☾37'45	
				opposition	109 Jan 07 j 23:32	17°☾14'41	0°-7'-58
conjunction	101 Jun 24 j 15:39	0°☾33'43	0°-39'-17	min. Earth dist.	109 Jan 08 j 11:52	17°☾13'49	29.04020 AU
minimum elong	101 Jun 24 j 15:40	0°☾33'43	0°39'18	direct	109 Mar 28 j 10:27	15°☾49'25	
max. Earth dist.	101 Jun 24 j 08:50	0°☾33'05	30.97026 AU				
retrograde	101 Oct 07 j 10:40	3°☾04'12		conjunction	109 Jul 13 j 04:36	18°☾21'21	0°-5'-19
opposition	101 Dec 23 j 23:25	1°☾40'38	0°-39'-48	minimum elong	109 Jul 13 j 04:35	18°☾21'20	0°05'21
min. Earth dist.	101 Dec 24 j 05:07	1°☾40'14	28.97616 AU	behind sun begin	109 Jul 12 j 22:14	18°☾20'47	
direct	102 Mar 12 j 22:23	0°☾15'34		behind sun end	109 Jul 13 j 10:57	18°☾21'54	
				max. Earth dist.	109 Jul 12 j 14:50	18°☾20'05	31.04402 AU
conjunction	102 Jun 27 j 05:25	2°☾47'18	0°-35'-9	retrograde	109 Oct 25 j 02:07	20°☾50'30	
minimum elong	102 Jun 27 j 05:25	2°☾47'18	0°35'09	opposition	110 Jan 10 j 09:47	19°☾27'29	0°-3'-20
max. Earth dist.	102 Jun 26 j 22:48	2°☾46'42	30.98176 AU	min. Earth dist.	110 Jan 10 j 21:57	19°☾26'38	29.04815 AU
retrograde	102 Oct 09 j 21:55	5°☾17'40		direct	110 Mar 30 j 23:48	18°☾02'10	
opposition	102 Dec 26 j 09:45	3°☾54'13	0°-35'-22				
min. Earth dist.	102 Dec 26 j 16:20	3°☾53'45	28.98750 AU	conjunction	110 Jul 15 j 17:28	20°☾34'04	0°00'-58
direct	103 Mar 15 j 11:51	2°☾29'10		minimum elong	110 Jul 15 j 17:28	20°☾34'04	0°00'58
				behind sun begin	110 Jul 15 j 10:53	20°☾33'29	
conjunction	103 Jun 29 j 19:11	5°☾00'58	0°-30'-59	behind sun end	110 Jul 16 j 00:03	20°☾34'39	
minimum elong	103 Jun 29 j 19:11	5°☾00'58	0°31'00	max. Earth dist.	110 Jul 15 j 02:26	20°☾32'41	31.05236 AU
max. Earth dist.	103 Jun 29 j 10:25	5°☾00'10	30.99293 AU	asc. node	110 Oct 03 j 12:19	22°☾53'09	
retrograde	103 Oct 12 j 10:44	7°☾31'12		retrograde	110 Oct 27 j 12:55	23°☾03'04	
opposition	103 Dec 28 j 19:58	6°☾07'51	0°-30'-52	opposition	111 Jan 12 j 20:02	21°☾40'05	0°01'17
min. Earth dist.	103 Dec 29 j 03:16	6°☾07'20	28.99838 AU	min. Earth dist.	111 Jan 13 j 08:57	21°☾39'10	29.05711 AU
direct	104 Mar 16 j 23:25	4°☾42'47		direct	111 Apr 02 j 11:05	20°☾14'44	
conjunction	104 Jul 01 j 09:09	7°☾14'40	0°-26'-46	conjunction	111 Jul 18 j 06:34	22°☾46'38	0°03'28
minimum elong	104 Jul 01 j 09:09	7°☾14'40	0°26'46	minimum elong	111 Jul 18 j 06:33	22°☾46'38	0°03'27
max. Earth dist.	104 Jul 01 j 00:17	7°☾13'51	31.00328 AU	behind sun begin	111 Jul 18 j 00:01	22°☾46'03	
retrograde	104 Oct 13 j 22:02	9°☾44'44		behind sun end	111 Jul 18 j 13:05	22°☾47'12	
opposition	104 Dec 30 j 06:26	8°☾21'28	0°-26'-20	max. Earth dist.	111 Jul 17 j 16:03	22°☾45'18	31.06187 AU
min. Earth dist.	104 Dec 30 j 15:20	8°☾20'51	29.00818 AU	retrograde	111 Oct 29 j 22:52	25°☾15'27	
direct	105 Mar 19 j 12:27	6°☾56'24		opposition	112 Jan 15 j 06:11	23°☾52'32	0°05'54
				min. Earth dist.	112 Jan 15 j 19:35	23°☾51'35	29.06716 AU
conjunction	105 Jul 03 j 22:45	9°☾28'19	0°-22'-30	direct	112 Apr 04 j 00:01	22°☾27'10	
minimum elong	105 Jul 03 j 22:45	9°☾28'19	0°22'32				
max. Earth dist.	105 Jul 03 j 11:47	9°☾27'18	31.01264 AU	conjunction	112 Jul 19 j 19:28	24°☾59'04	0°07'46
retrograde	105 Oct 16 j 10:41	11°☾58'13		minimum elong	112 Jul 19 j 19:28	24°☾59'04	0°07'46
opposition	106 Jan 01 j 16:43	10°☾35'01	0°-21'-47	behind sun begin	112 Jul 19 j 13:33	24°☾58'33	
min. Earth dist.	106 Jan 02 j 01:41	10°☾34'23	29.01705 AU	behind sun end	112 Jul 20 j 01:23	24°☾59'36	
direct	106 Mar 22 j 00:50	9°☾09'55		max. Earth dist.	112 Jul 19 j 03:26	24°☾57'36	31.07261 AU
				retrograde	112 Oct 31 j 11:07	27°☾27'45	
conjunction	106 Jul 06 j 12:26	11°☾41'51	0°-18'-14	opposition	113 Jan 16 j 16:27	26°☾04'54	0°10'31
minimum elong	106 Jul 06 j 12:26	11°☾41'51	0°18'14	min. Earth dist.	113 Jan 17 j 05:51	26°☾03'58	29.07858 AU
max. Earth dist.	106 Jul 06 j 01:03	11°☾40'49	31.02102 AU	direct	113 Apr 06 j 11:24	24°☾39'33	
retrograde	106 Oct 18 j 19:39	14°☾11'35					
opposition	107 Jan 04 j 03:04	12°☾48'27	0°-17'-11	conjunction	113 Jul 22 j 08:20	27°☾11'29	0°12'04
min. Earth dist.	107 Jan 04 j 13:57	12°☾47'40	29.02510 AU	minimum elong	113 Jul 22 j 08:20	27°☾11'29	0°12'03
direct	107 Mar 24 j 12:08	11°☾23'18		behind sun begin	113 Jul 22 j 03:55	27°☾11'05	
				behind sun end	113 Jul 22 j 12:44	27°☾11'52	
conjunction	107 Jul 09 j 01:55	13°☾55'14	0°-13'-56	max. Earth dist.	113 Jul 21 j 17:01	27°☾10'04	31.08448 AU
minimum elong	107 Jul 09 j 01:54	13°☾55'14	0°13'57	retrograde	113 Nov 02 j 21:57	29°☾40'02	
behind sun begin	107 Jul 08 j 22:43	13°☾54'57		opposition	114 Jan 19 j 02:49	28°☾17'16	0°15'07
behind sun end	107 Jul 09 j 05:05	13°☾55'31		min. Earth dist.	114 Jan 19 j 17:19	28°☾16'15	29.09081 AU

direct	114 Apr 09 j 00:44	26° \mathring{S} 51'57		retrograde	121 Nov 20 j 10:21	17° \mathring{N} 17'47	
				opposition	122 Feb 05 j 14:33	15° \mathring{N} 55'30	0°50'29
conjunction	114 Jul 24 j 21:04	29° \mathring{S} 23'54	0°16'21	min. Earth dist.	122 Feb 06 j 09:45	15° \mathring{N} 54'09	29.16703 AU
minimum elong	114 Jul 24 j 21:04	29° \mathring{S} 23'54	0°16'22		122 Mar 13 j 18:27	15° \mathring{R} \mathring{N}	
max. Earth dist.	114 Jul 24 j 04:13	29° \mathring{S} 22'21	31.09703 AU	direct	122 Apr 26 j 23:26	14° \mathring{N} 30'09	
	114 Aug 10 j 05:25	0° \mathring{N}			122 Jun 09 j 11:32	15° \mathring{N}	
retrograde	114 Nov 05 j 10:12	1° \mathring{N} 52'21		max. Earth dist.	122 Aug 11 j 04:01	17° \mathring{N} 00'04	31.17000 AU
opposition	115 Jan 21 j 12:59	0° \mathring{N} 29'41	0°19'42				
min. Earth dist.	115 Jan 22 j 03:14	0° \mathring{N} 28'41	29.10344 AU	conjunction	122 Aug 12 j 01:17	17° \mathring{N} 02'02	0°49'14
	115 Feb 08 j 13:38	30° \mathring{R} \mathring{S}		minimum elong	122 Aug 12 j 01:17	17° \mathring{N} 02'02	0°49'14
direct	115 Apr 11 j 13:12	29° \mathring{S} 04'23		retrograde	122 Nov 22 j 20:33	19° \mathring{N} 29'28	
	115 Jun 10 j 13:59	0° \mathring{N}		opposition	123 Feb 08 j 01:02	18° \mathring{N} 07'12	0°54'37
				min. Earth dist.	123 Feb 08 j 21:14	18° \mathring{N} 05'48	29.17402 AU
conjunction	115 Jul 27 j 09:59	1° \mathring{N} 36'23	0°20'37	direct	123 Apr 29 j 13:06	16° \mathring{N} 41'51	
minimum elong	115 Jul 27 j 09:59	1° \mathring{N} 36'23	0°20'37				
max. Earth dist.	115 Jul 26 j 17:03	1° \mathring{N} 34'49	31.10943 AU	conjunction	123 Aug 14 j 13:10	19° \mathring{N} 13'42	0°53'04
retrograde	115 Nov 07 j 19:57	4° \mathring{N} 04'42		minimum elong	123 Aug 14 j 13:09	19° \mathring{N} 13'42	0°53'04
opposition	116 Jan 23 j 23:29	2° \mathring{N} 42'08	0°24'15	max. Earth dist.	123 Aug 13 j 14:42	19° \mathring{N} 11'37	31.17731 AU
min. Earth dist.	116 Jan 24 j 15:31	2° \mathring{N} 41'01	29.11561 AU	retrograde	123 Nov 25 j 08:11	21° \mathring{N} 41'02	
direct	116 Apr 13 j 00:34	1° \mathring{N} 16'52		opposition	124 Feb 10 j 11:31	20° \mathring{N} 18'47	0°58'40
				min. Earth dist.	124 Feb 11 j 06:54	20° \mathring{N} 17'27	29.18178 AU
conjunction	116 Jul 28 j 22:45	3° \mathring{N} 48'52	0°24'51	direct	124 May 01 j 01:56	18° \mathring{N} 53'26	
minimum elong	116 Jul 28 j 22:45	3° \mathring{N} 48'52	0°24'52	max. Earth dist.	124 Aug 15 j 03:09	21° \mathring{N} 23'14	31.18543 AU
max. Earth dist.	116 Jul 28 j 04:37	3° \mathring{N} 47'12	31.12116 AU				
retrograde	116 Nov 09 j 07:17	6° \mathring{N} 17'04		conjunction	124 Aug 16 j 01:02	21° \mathring{N} 25'16	0°56'49
opposition	117 Jan 25 j 09:53	4° \mathring{N} 54'36	0°28'45	minimum elong	124 Aug 16 j 01:02	21° \mathring{N} 25'16	0°56'49
min. Earth dist.	117 Jan 26 j 01:47	4° \mathring{N} 53'29	29.12679 AU	retrograde	124 Nov 26 j 17:34	23° \mathring{N} 52'30	
direct	117 Apr 15 j 13:12	3° \mathring{N} 29'20		opposition	125 Feb 11 j 22:14	22° \mathring{N} 30'19	1°02'38
				min. Earth dist.	125 Feb 12 j 18:42	22° \mathring{N} 28'54	29.19050 AU
conjunction	117 Jul 31 j 11:32	6° \mathring{N} 01'21	0°29'03	direct	125 May 03 j 13:34	21° \mathring{N} 04'59	
minimum elong	117 Jul 31 j 11:31	6° \mathring{N} 01'21	0°29'03				
max. Earth dist.	117 Jul 30 j 16:33	5° \mathring{N} 59'36	31.13168 AU	conjunction	125 Aug 18 j 12:44	23° \mathring{N} 36'48	1°00'29
retrograde	117 Nov 11 j 17:22	8° \mathring{N} 29'26		minimum elong	125 Aug 18 j 12:43	23° \mathring{N} 36'48	1°00'29
opposition	118 Jan 27 j 20:31	7° \mathring{N} 07'01	0°33'13	max. Earth dist.	125 Aug 17 j 14:26	23° \mathring{N} 34'44	31.19469 AU
min. Earth dist.	118 Jan 28 j 13:58	7° \mathring{N} 05'48	29.13686 AU	retrograde	125 Nov 29 j 04:53	26° \mathring{N} 03'57	
direct	118 Apr 17 j 23:06	5° \mathring{N} 41'45		opposition	126 Feb 14 j 08:46	24° \mathring{N} 41'51	1°06'30
max. Earth dist.	118 Aug 02 j 04:42	8° \mathring{N} 11'58	31.14111 AU	min. Earth dist.	126 Feb 15 j 04:25	24° \mathring{N} 40'29	29.20014 AU
				direct	126 May 06 j 02:20	23° \mathring{N} 16'34	
conjunction	118 Aug 03 j 00:04	8° \mathring{N} 13'46	0°33'12	max. Earth dist.	126 Aug 20 j 01:56	25° \mathring{N} 46'18	31.20456 AU
minimum elong	118 Aug 03 j 00:04	8° \mathring{N} 13'46	0°33'13				
retrograde	118 Nov 14 j 02:49	10° \mathring{N} 41'42		conjunction	126 Aug 21 j 00:18	25° \mathring{N} 48'22	1°04'04
opposition	119 Jan 30 j 07:02	9° \mathring{N} 19'21	0°37'38	minimum elong	126 Aug 21 j 00:18	25° \mathring{N} 48'22	1°04'04
min. Earth dist.	119 Jan 31 j 00:36	9° \mathring{N} 18'08	29.14558 AU	retrograde	126 Dec 01 j 14:54	28° \mathring{N} 15'29	
direct	119 Apr 20 j 12:26	7° \mathring{N} 54'05		opposition	127 Feb 16 j 19:31	26° \mathring{N} 53'26	1°10'17
				min. Earth dist.	127 Feb 17 j 16:12	26° \mathring{N} 52'00	29.21024 AU
conjunction	119 Aug 05 j 12:36	10° \mathring{N} 26'04	0°37'18	direct	127 May 08 j 12:21	25° \mathring{N} 28'12	
minimum elong	119 Aug 05 j 12:36	10° \mathring{N} 26'04	0°37'18				
max. Earth dist.	119 Aug 04 j 15:39	10° \mathring{N} 24'07	31.14924 AU	conjunction	127 Aug 23 j 11:59	28° \mathring{N} 00'00	1°07'33
retrograde	119 Nov 16 j 13:16	12° \mathring{N} 53'53		minimum elong	127 Aug 23 j 11:59	28° \mathring{N} 00'00	1°07'33
opposition	120 Feb 01 j 17:28	11° \mathring{N} 31'34	0°41'59	max. Earth dist.	127 Aug 22 j 13:44	27° \mathring{N} 57'56	31.21459 AU
min. Earth dist.	120 Feb 02 j 12:01	11° \mathring{N} 30'16	29.15334 AU		127 Oct 24 j 23:04	0° \mathring{N}	
direct	120 Apr 21 j 23:10	10° \mathring{N} 06'16		retrograde	127 Dec 03 j 23:40	0° \mathring{N} 27'03	
max. Earth dist.	120 Aug 06 j 04:29	12° \mathring{N} 36'19	31.15653 AU		128 Jan 14 j 01:06	30° \mathring{R} \mathring{N}	
				opposition	128 Feb 19 j 06:10	29° \mathring{N} 05'05	1°13'57
conjunction	120 Aug 07 j 01:07	12° \mathring{N} 38'14	0°41'21	min. Earth dist.	128 Feb 20 j 02:41	29° \mathring{N} 03'40	29.22002 AU
minimum elong	120 Aug 07 j 01:07	12° \mathring{N} 38'14	0°41'21	direct	128 May 10 j 01:18	27° \mathring{N} 39'54	
	120 Oct 30 j 12:14	15° \mathring{N}			128 Aug 19 j 17:57	0° \mathring{N}	
retrograde	120 Nov 17 j 22:44	15° \mathring{N} 05'55					
	120 Dec 06 j 16:06	15° \mathring{R} \mathring{N}		conjunction	128 Aug 24 j 23:34	0° \mathring{N} 11'41	1°10'56
opposition	121 Feb 03 j 04:03	13° \mathring{N} 43'37	0°46'16	minimum elong	128 Aug 24 j 23:34	0° \mathring{N} 11'41	1°10'56
min. Earth dist.	121 Feb 03 j 23:18	13° \mathring{N} 42'16	29.16025 AU	max. Earth dist.	128 Aug 24 j 00:11	0° \mathring{N} 09'31	31.22398 AU
direct	121 Apr 24 j 11:49	12° \mathring{N} 18'18		retrograde	128 Dec 05 j 09:54	2° \mathring{N} 38'41	
				opposition	129 Feb 20 j 17:05	1° \mathring{N} 16'46	1°17'31
conjunction	121 Aug 09 j 13:08	14° \mathring{N} 50'13	0°45'19	min. Earth dist.	129 Feb 21 j 14:12	1° \mathring{N} 15'19	29.22912 AU
minimum elong	121 Aug 09 j 13:08	14° \mathring{N} 50'13	0°45'19		129 Apr 19 j 10:59	30° \mathring{R} \mathring{N}	
max. Earth dist.	121 Aug 08 j 15:02	14° \mathring{N} 48'10	31.16325 AU	direct	129 May 12 j 11:02	29° \mathring{N} 51'37	
	121 Aug 13 j 22:28	15° \mathring{N}			129 Jun 04 j 07:31	0° \mathring{N}	

conjunction	129 Aug 27 j 11:02	2° $\mathring{\text{M}}$ 23'23	1°14'13	retrograde	137 Dec 25 j 04:04	22° $\mathring{\text{M}}$ 18'23	
minimum elong	129 Aug 27 j 11:02	2° $\mathring{\text{M}}$ 23'23	1°14'13	opposition	138 Mar 12 j 20:16	20° $\mathring{\text{M}}$ 56'28	1°43'54
max. Earth dist.	129 Aug 26 j 12:16	2° $\mathring{\text{M}}$ 21'16	31.23244 AU	min. Earth dist.	138 Mar 13 j 18:02	20° $\mathring{\text{M}}$ 54'58	29.27335 AU
retrograde	129 Dec 07 j 19:11	4° $\mathring{\text{M}}$ 50'19		direct	138 Jun 02 j 00:03	19° $\mathring{\text{M}}$ 31'21	
opposition	130 Feb 23 j 04:05	3° $\mathring{\text{M}}$ 28'26	1°20'58				
min. Earth dist.	130 Feb 24 j 01:48	3° $\mathring{\text{M}}$ 26'56	29.23693 AU	conjunction	138 Sep 16 j 13:38	22° $\mathring{\text{M}}$ 02'30	1°38'21
direct	130 May 14 j 22:53	2° $\mathring{\text{M}}$ 03'19		minimum elong	138 Sep 16 j 13:38	22° $\mathring{\text{M}}$ 02'30	1°38'21
				max. Earth dist.	138 Sep 15 j 14:56	22° $\mathring{\text{M}}$ 00'23	31.27533 AU
conjunction	130 Aug 29 j 22:27	4° $\mathring{\text{M}}$ 35'01	1°17'24	retrograde	138 Dec 27 j 13:00	24° $\mathring{\text{M}}$ 28'56	
minimum elong	130 Aug 29 j 22:26	4° $\mathring{\text{M}}$ 35'01	1°17'24	opposition	139 Mar 15 j 07:20	23° $\mathring{\text{M}}$ 07'04	1°46'08
max. Earth dist.	130 Aug 28 j 22:11	4° $\mathring{\text{M}}$ 32'45	31.23957 AU	min. Earth dist.	139 Mar 16 j 05:10	23° $\mathring{\text{M}}$ 05'34	29.27967 AU
retrograde	130 Dec 10 j 06:25	7° $\mathring{\text{M}}$ 01'53		direct	139 Jun 04 j 11:23	21° $\mathring{\text{M}}$ 42'02	
opposition	131 Feb 25 j 14:52	5° $\mathring{\text{M}}$ 40'02	1°24'18	max. Earth dist.	139 Sep 18 j 00:34	24° $\mathring{\text{M}}$ 10'57	31.28186 AU
min. Earth dist.	131 Feb 26 j 12:33	5° $\mathring{\text{M}}$ 38'32	29.24351 AU				
direct	131 May 17 j 10:22	4° $\mathring{\text{M}}$ 14'54		conjunction	139 Sep 19 j 00:04	24° $\mathring{\text{M}}$ 13'08	1°40'21
max. Earth dist.	131 Aug 31 j 10:22	6° $\mathring{\text{M}}$ 44'22	31.24534 AU	minimum elong	139 Sep 19 j 00:04	24° $\mathring{\text{M}}$ 13'08	1°40'21
				retrograde	139 Dec 30 j 00:21	26° $\mathring{\text{M}}$ 39'37	
conjunction	131 Sep 01 j 09:59	6° $\mathring{\text{M}}$ 46'33	1°20'27	opposition	140 Mar 16 j 18:34	25° $\mathring{\text{M}}$ 17'47	1°48'12
minimum elong	131 Sep 01 j 09:58	6° $\mathring{\text{M}}$ 46'33	1°20'27	min. Earth dist.	140 Mar 17 j 15:43	25° $\mathring{\text{M}}$ 16'20	29.28631 AU
retrograde	131 Dec 12 j 16:14	9° $\mathring{\text{M}}$ 13'21		direct	140 Jun 05 j 21:59	23° $\mathring{\text{M}}$ 52'49	
opposition	132 Feb 28 j 01:59	7° $\mathring{\text{M}}$ 51'29	1°27'30				
min. Earth dist.	132 Feb 29 j 00:47	7° $\mathring{\text{M}}$ 49'55	29.24863 AU	conjunction	140 Sep 20 j 10:29	26° $\mathring{\text{M}}$ 23'55	1°42'14
direct	132 May 18 j 23:35	6° $\mathring{\text{M}}$ 26'21		minimum elong	140 Sep 20 j 10:28	26° $\mathring{\text{M}}$ 23'55	1°42'14
				max. Earth dist.	140 Sep 19 j 12:17	26° $\mathring{\text{M}}$ 21'50	31.28826 AU
conjunction	132 Sep 02 j 21:07	8° $\mathring{\text{M}}$ 57'56	1°23'24	retrograde	140 Dec 31 j 10:20	28° $\mathring{\text{M}}$ 50'25	
minimum elong	132 Sep 02 j 21:07	8° $\mathring{\text{M}}$ 57'56	1°23'24	opposition	141 Mar 19 j 06:04	27° $\mathring{\text{M}}$ 28'37	1°50'07
max. Earth dist.	132 Sep 01 j 20:18	8° $\mathring{\text{M}}$ 55'37	31.24989 AU	min. Earth dist.	141 Mar 20 j 03:55	27° $\mathring{\text{M}}$ 27'07	29.29248 AU
retrograde	132 Dec 14 j 03:29	11° $\mathring{\text{M}}$ 24'39		direct	141 Jun 08 j 09:54	26° $\mathring{\text{M}}$ 03'45	
opposition	133 Mar 01 j 12:56	10° $\mathring{\text{M}}$ 02'46	1°30'34				
min. Earth dist.	133 Mar 02 j 11:00	10° $\mathring{\text{M}}$ 01'15	29.25270 AU	conjunction	141 Sep 22 j 20:47	28° $\mathring{\text{M}}$ 34'47	1°43'57
direct	133 May 21 j 12:09	8° $\mathring{\text{M}}$ 37'37		minimum elong	141 Sep 22 j 20:47	28° $\mathring{\text{M}}$ 34'47	1°43'57
max. Earth dist.	133 Sep 04 j 07:58	11° $\mathring{\text{M}}$ 06'51	31.25347 AU	max. Earth dist.	141 Sep 21 j 21:50	28° $\mathring{\text{M}}$ 32'38	31.29410 AU
					141 Nov 02 j 06:26	0° $\mathring{\text{A}}$	
conjunction	133 Sep 05 j 08:18	11° $\mathring{\text{M}}$ 09'07	1°26'13	retrograde	142 Jan 02 j 22:00	1° $\mathring{\text{A}}$ 01'19	
minimum elong	133 Sep 05 j 08:17	11° $\mathring{\text{M}}$ 09'07	1°26'13		142 Mar 09 j 03:15	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$	
retrograde	133 Dec 16 j 13:06	13° $\mathring{\text{M}}$ 35'45		opposition	142 Mar 21 j 17:24	29° $\mathring{\text{M}}$ 39'33	1°51'53
opposition	134 Mar 04 j 00:00	12° $\mathring{\text{M}}$ 13'50	1°33'31	min. Earth dist.	142 Mar 22 j 14:14	29° $\mathring{\text{M}}$ 38'08	29.29789 AU
min. Earth dist.	134 Mar 04 j 23:15	12° $\mathring{\text{M}}$ 12'14	29.25612 AU	direct	142 Jun 10 j 21:09	28° $\mathring{\text{M}}$ 14'44	
direct	134 May 24 j 00:29	10° $\mathring{\text{M}}$ 48'40			142 Sep 04 j 14:04	0° $\mathring{\text{A}}$	
				max. Earth dist.	142 Sep 24 j 08:46	0° $\mathring{\text{A}}$ 43'39	31.29883 AU
conjunction	134 Sep 07 j 19:07	13° $\mathring{\text{M}}$ 20'04	1°28'54				
minimum elong	134 Sep 07 j 19:07	13° $\mathring{\text{M}}$ 20'04	1°28'54	conjunction	142 Sep 25 j 07:11	0° $\mathring{\text{A}}$ 45'45	1°45'31
max. Earth dist.	134 Sep 06 j 18:33	13° $\mathring{\text{M}}$ 17'47	31.25677 AU	minimum elong	142 Sep 25 j 07:10	0° $\mathring{\text{A}}$ 45'45	1°45'31
retrograde	134 Dec 19 j 00:00	15° $\mathring{\text{M}}$ 46'37		retrograde	143 Jan 05 j 08:22	3° $\mathring{\text{A}}$ 12'18	
opposition	135 Mar 06 j 10:56	14° $\mathring{\text{M}}$ 24'41	1°36'20	opposition	143 Mar 24 j 05:01	1° $\mathring{\text{A}}$ 50'33	1°53'29
min. Earth dist.	135 Mar 07 j 09:15	14° $\mathring{\text{M}}$ 23'09	29.25935 AU	min. Earth dist.	143 Mar 25 j 02:55	1° $\mathring{\text{A}}$ 49'03	29.30205 AU
direct	135 May 26 j 14:21	12° $\mathring{\text{M}}$ 59'30		direct	143 Jun 13 j 09:24	0° $\mathring{\text{A}}$ 25'47	
max. Earth dist.	135 Sep 09 j 05:29	15° $\mathring{\text{M}}$ 28'33	31.26004 AU				
				conjunction	143 Sep 27 j 17:27	2° $\mathring{\text{A}}$ 56'44	1°46'57
conjunction	135 Sep 10 j 05:56	15° $\mathring{\text{M}}$ 30'49	1°31'28	minimum elong	143 Sep 27 j 17:26	2° $\mathring{\text{A}}$ 56'44	1°46'56
minimum elong	135 Sep 10 j 05:56	15° $\mathring{\text{M}}$ 30'49	1°31'27	max. Earth dist.	143 Sep 26 j 18:51	2° $\mathring{\text{A}}$ 54'37	31.30233 AU
retrograde	135 Dec 21 j 09:32	17° $\mathring{\text{M}}$ 57'18		retrograde	144 Jan 07 j 20:04	5° $\mathring{\text{A}}$ 23'18	
opposition	136 Mar 07 j 21:59	16° $\mathring{\text{M}}$ 35'22	1°39'00	opposition	144 Mar 25 j 16:32	4° $\mathring{\text{A}}$ 01'33	1°54'55
min. Earth dist.	136 Mar 08 j 20:53	16° $\mathring{\text{M}}$ 33'47	29.26307 AU	min. Earth dist.	144 Mar 26 j 13:30	4° $\mathring{\text{A}}$ 00'07	29.30481 AU
direct	136 May 28 j 01:27	15° $\mathring{\text{M}}$ 10'10		direct	144 Jun 14 j 23:28	2° $\mathring{\text{A}}$ 36'49	
				max. Earth dist.	144 Sep 28 j 05:04	5° $\mathring{\text{A}}$ 05'34	31.30440 AU
conjunction	136 Sep 11 j 16:39	17° $\mathring{\text{M}}$ 41'25	1°33'54				
minimum elong	136 Sep 11 j 16:38	17° $\mathring{\text{M}}$ 41'25	1°33'54	conjunction	144 Sep 29 j 03:43	5° $\mathring{\text{A}}$ 07'41	1°48'13
max. Earth dist.	136 Sep 10 j 17:01	17° $\mathring{\text{M}}$ 39'13	31.26416 AU	minimum elong	144 Sep 29 j 03:43	5° $\mathring{\text{A}}$ 07'41	1°48'13
retrograde	136 Dec 22 j 18:04	20° $\mathring{\text{M}}$ 07'52		retrograde	145 Jan 09 j 06:16	7° $\mathring{\text{A}}$ 34'16	
opposition	137 Mar 10 j 09:08	18° $\mathring{\text{M}}$ 45'55	1°41'31	opposition	145 Mar 28 j 04:17	6° $\mathring{\text{A}}$ 12'29	1°56'11
min. Earth dist.	137 Mar 11 j 07:06	18° $\mathring{\text{M}}$ 44'24	29.26764 AU	min. Earth dist.	145 Mar 29 j 01:53	6° $\mathring{\text{A}}$ 11'01	29.30639 AU
direct	137 May 30 j 14:24	17° $\mathring{\text{M}}$ 20'46		direct	145 Jun 17 j 10:58	4° $\mathring{\text{A}}$ 47'47	
max. Earth dist.	137 Sep 13 j 03:02	19° $\mathring{\text{M}}$ 49'42	31.26924 AU				
				conjunction	145 Oct 01 j 13:46	7° $\mathring{\text{A}}$ 18'33	1°49'20
conjunction	137 Sep 14 j 03:03	19° $\mathring{\text{M}}$ 51'57	1°36'11	minimum elong	145 Oct 01 j 13:45	7° $\mathring{\text{A}}$ 18'33	1°49'19
minimum elong	137 Sep 14 j 03:03	19° $\mathring{\text{M}}$ 51'57	1°36'11	max. Earth dist.	145 Sep 30 j 15:53	7° $\mathring{\text{A}}$ 16'30	31.30542 AU

retrograde	146 Jan 11 j 14:43	9° 2 45'07		direct	154 Jul 07 j 19:28	24° 2 22'36	
opposition	146 Mar 30 j 15:55	8° 2 23'18	1°57'18				
min. Earth dist.	146 Mar 31 j 12:50	8° 2 21'52	29.30683 AU	conjunction	154 Oct 21 j 04:57	26° 2 52'37	1°52'13
direct	146 Jun 20 j 00:23	6° 2 58'36		minimum elong	154 Oct 21 j 04:57	26° 2 52'37	1°52'13
				max. Earth dist.	154 Oct 20 j 12:19	26° 2 51'03	31.31828 AU
conjunction	146 Oct 03 j 23:43	9° 2 29'16	1°50'17	retrograde	155 Jan 31 j 11:06	29° 2 19'36	
minimum elong	146 Oct 03 j 23:43	9° 2 29'16	1°50'17	opposition	155 Apr 20 j 02:40	27° 2 57'38	1°59'38
max. Earth dist.	146 Oct 03 j 01:16	9° 2 27'10	31.30552 AU	min. Earth dist.	155 Apr 20 j 18:55	27° 2 56'32	29.31982 AU
retrograde	147 Jan 14 j 00:37	11° 2 55'49		direct	155 Jul 10 j 08:47	26° 2 33'23	
opposition	147 Apr 02 j 03:26	10° 2 33'58	1°58'15				
min. Earth dist.	147 Apr 03 j 00:12	10° 2 32'33	29.30682 AU	conjunction	155 Oct 23 j 14:30	29° 2 03'20	1°51'44
direct	147 Jun 22 j 11:13	9° 2 09'16		minimum elong	155 Oct 23 j 14:30	29° 2 03'20	1°51'44
				max. Earth dist.	155 Oct 22 j 21:17	29° 2 01'43	31.31849 AU
conjunction	147 Oct 06 j 09:41	11° 2 39'49	1°51'05		155 Nov 18 j 08:04	0° 2	
minimum elong	147 Oct 06 j 09:41	11° 2 39'49	1°51'05	retrograde	156 Feb 02 j 22:18	1° 2 30'24	
max. Earth dist.	147 Oct 05 j 12:45	11° 2 37'51	31.30541 AU	opposition	156 Apr 21 j 14:59	0° 2 08'25	1°59'02
retrograde	148 Jan 16 j 09:14	14° 2 06'22		min. Earth dist.	156 Apr 22 j 06:57	0° 2 07'20	29.31938 AU
opposition	148 Apr 03 j 15:14	12° 2 44'28	1°59'01		156 Apr 26 j 19:41	30° 2 R 2	
min. Earth dist.	148 Apr 04 j 11:45	12° 2 43'04	29.30675 AU	direct	156 Jul 11 j 19:55	28° 2 44'14	
direct	148 Jun 23 j 23:41	11° 2 19'46			156 Sep 20 j 15:11	0° 2	
				max. Earth dist.	156 Oct 24 j 08:17	1° 2 12'37	31.31726 AU
conjunction	148 Oct 07 j 19:15	13° 2 50'12	1°51'44				
minimum elong	148 Oct 07 j 19:15	13° 2 50'12	1°51'44	conjunction	156 Oct 25 j 00:05	1° 2 14'06	1°51'05
max. Earth dist.	148 Oct 06 j 22:01	13° 2 48'12	31.30564 AU	minimum elong	156 Oct 25 j 00:05	1° 2 14'06	1°51'05
retrograde	149 Jan 17 j 19:29	16° 2 16'46		retrograde	157 Feb 04 j 07:34	3° 2 41'15	
opposition	149 Apr 06 j 02:59	14° 2 54'49	1°59'38	opposition	157 Apr 24 j 03:25	2° 2 19'14	1°58'15
min. Earth dist.	149 Apr 06 j 22:12	14° 2 53'31	29.30743 AU	min. Earth dist.	157 Apr 24 j 19:19	2° 2 18'10	29.31728 AU
direct	149 Jun 26 j 10:22	13° 2 30'09		direct	157 Jul 14 j 08:40	0° 2 55'06	
max. Earth dist.	149 Oct 09 j 09:33	15° 2 58'39	31.30670 AU				
conjunction	149 Oct 10 j 05:02	16° 2 00'29	1°52'13	conjunction	157 Oct 27 j 09:33	3° 2 24'52	1°50'17
minimum elong	149 Oct 10 j 05:02	16° 2 00'29	1°52'13	minimum elong	157 Oct 27 j 09:33	3° 2 24'52	1°50'17
retrograde	150 Jan 20 j 04:38	18° 2 27'06		max. Earth dist.	157 Oct 26 j 17:07	3° 2 23'19	31.31451 AU
opposition	150 Apr 08 j 14:44	17° 2 05'07	2°00'04	retrograde	158 Feb 06 j 18:15	5° 2 52'05	
min. Earth dist.	150 Apr 09 j 10:05	17° 2 03'48	29.30899 AU	opposition	158 Apr 26 j 15:34	4° 2 30'02	1°57'19
direct	150 Jun 28 j 21:15	15° 2 40'29		min. Earth dist.	158 Apr 27 j 06:30	4° 2 29'01	29.31384 AU
				direct	158 Jul 16 j 19:23	3° 2 05'55	
conjunction	150 Oct 12 j 14:37	18° 2 10'44	1°52'33	conjunction	158 Oct 29 j 19:06	5° 2 35'35	1°49'20
minimum elong	150 Oct 12 j 14:37	18° 2 10'44	1°52'33	minimum elong	158 Oct 29 j 19:06	5° 2 35'35	1°49'20
max. Earth dist.	150 Oct 11 j 19:02	18° 2 08'54	31.30879 AU	max. Earth dist.	158 Oct 29 j 04:03	5° 2 34'10	31.31041 AU
retrograde	151 Jan 22 j 16:02	20° 2 37'24		retrograde	159 Feb 09 j 03:35	8° 2 02'53	
opposition	151 Apr 11 j 02:29	19° 2 15'25	2°00'19	opposition	159 Apr 29 j 04:01	6° 2 40'45	1°56'13
min. Earth dist.	151 Apr 11 j 20:07	19° 2 14'14	29.31138 AU	min. Earth dist.	159 Apr 29 j 19:18	6° 2 39'43	29.30919 AU
direct	151 Jul 01 j 07:52	17° 2 50'52		direct	159 Jul 19 j 06:31	5° 2 16'39	
max. Earth dist.	151 Oct 14 j 05:46	20° 2 19'19	31.31140 AU				
conjunction	151 Oct 15 j 00:13	20° 2 21'03	1°52'42	conjunction	159 Nov 01 j 04:18	7° 2 46'12	1°48'13
minimum elong	151 Oct 15 j 00:13	20° 2 21'03	1°52'42	minimum elong	159 Nov 01 j 04:18	7° 2 46'12	1°48'13
retrograde	152 Jan 25 j 02:41	22° 2 47'47		max. Earth dist.	159 Oct 31 j 13:17	7° 2 44'48	31.30553 AU
opposition	152 Apr 12 j 14:30	21° 2 25'49	2°00'25	retrograde	160 Feb 11 j 14:50	10° 2 13'35	
min. Earth dist.	152 Apr 13 j 08:35	21° 2 24'35	29.31417 AU	opposition	160 Apr 30 j 16:21	8° 2 51'23	1°54'57
direct	152 Jul 02 j 19:37	20° 2 01'20		min. Earth dist.	160 May 01 j 05:50	8° 2 50'28	29.30408 AU
				direct	160 Jul 20 j 17:17	7° 2 27'17	
conjunction	152 Oct 16 j 09:48	22° 2 31'27	1°52'42	conjunction	160 Nov 02 j 13:34	9° 2 56'44	1°46'57
minimum elong	152 Oct 16 j 09:48	22° 2 31'27	1°52'43	minimum elong	160 Nov 02 j 13:34	9° 2 56'44	1°46'57
max. Earth dist.	152 Oct 15 j 15:54	22° 2 29'47	31.31430 AU	max. Earth dist.	160 Nov 01 j 23:42	9° 2 55'26	31.30040 AU
retrograde	153 Jan 26 j 14:35	24° 2 58'16		retrograde	161 Feb 13 j 01:38	12° 2 24'12	
opposition	153 Apr 15 j 02:28	23° 2 36'18	2°00'19	opposition	161 May 03 j 04:51	11° 2 01'55	1°53'31
min. Earth dist.	153 Apr 15 j 19:08	23° 2 35'10	29.31687 AU	min. Earth dist.	161 May 03 j 18:28	11° 2 01'00	29.29920 AU
direct	153 Jul 05 j 08:34	22° 2 11'55		direct	161 Jul 23 j 05:02	9° 2 37'51	
conjunction	153 Oct 18 j 19:16	24° 2 41'59	1°52'33	conjunction	161 Nov 04 j 22:41	12° 2 07'12	1°45'32
minimum elong	153 Oct 18 j 19:16	24° 2 41'59	1°52'32	minimum elong	161 Nov 04 j 22:41	12° 2 07'12	1°45'32
max. Earth dist.	153 Oct 18 j 01:38	24° 2 40'19	31.31671 AU	max. Earth dist.	161 Nov 04 j 09:52	12° 2 06'00	31.29589 AU
retrograde	154 Jan 29 j 01:34	27° 2 08'53		retrograde	162 Feb 15 j 13:40	14° 2 34'45	
opposition	154 Apr 17 j 14:37	25° 2 46'55	2°00'04	opposition	162 May 05 j 17:10	13° 2 12'25	1°51'56
min. Earth dist.	154 Apr 18 j 07:39	25° 2 45'46	29.31896 AU	min. Earth dist.	162 May 06 j 04:53	13° 2 11'38	29.29493 AU

direct	162 Jul 25 j 17:33	11° 14 48'23		min. Earth dist.	170 May 24 j 05:12	0° 27 39'11	29.26199 AU
					170 Jun 18 j 10:30	30° 08 11	
conjunction	162 Nov 07 j 07:49	14° 11 17'40	1°43'58	direct	170 Aug 12 j 13:31	29° 11 16'03	
minimum elong	162 Nov 07 j 07:49	14° 11 17'40	1°43'58		170 Oct 04 j 02:02	0° 27	
max. Earth dist.	162 Nov 06 j 19:33	14° 11 16'31	31.29203 AU				
	162 Nov 26 j 06:34	15° 11		conjunction	170 Nov 24 j 09:31	1° 27 44'45	1°26'14
retrograde	163 Feb 18 j 00:46	16° 11 45'19		minimum elong	170 Nov 24 j 09:32	1° 27 44'45	1°26'14
opposition	163 May 08 j 05:34	15° 11 22'57	1°50'10	max. Earth dist.	170 Nov 24 j 03:32	1° 27 44'11	31.25707 AU
min. Earth dist.	163 May 08 j 17:04	15° 11 22'11	29.29154 AU	retrograde	171 Mar 07 j 15:59	4° 27 13'24	
	163 May 22 j 13:36	15° 08		opposition	171 May 26 j 11:13	2° 27 50'41	1°30'38
direct	163 Jul 28 j 03:54	13° 08 58'59		min. Earth dist.	171 May 26 j 16:21	2° 27 50'20	29.25322 AU
	163 Sep 28 j 22:52	15° 08		direct	171 Aug 15 j 01:31	1° 27 27'05	
conjunction	163 Nov 09 j 17:01	16° 11 28'12	1°42'15	conjunction	171 Nov 26 j 18:43	3° 27 55'41	1°23'25
minimum elong	163 Nov 09 j 17:01	16° 11 28'12	1°42'15	minimum elong	171 Nov 26 j 18:43	3° 27 55'41	1°23'25
max. Earth dist.	163 Nov 09 j 06:30	16° 11 27'12	31.28908 AU	max. Earth dist.	171 Nov 26 j 12:57	3° 27 55'08	31.24793 AU
retrograde	164 Feb 20 j 11:00	18° 11 55'58		retrograde	172 Mar 09 j 03:42	6° 27 24'26	
opposition	164 May 09 j 18:06	17° 11 33'35	1°48'16	opposition	172 May 28 j 00:10	5° 27 01'37	1°27'35
min. Earth dist.	164 May 10 j 04:09	17° 11 32'54	29.28872 AU	min. Earth dist.	172 May 28 j 05:14	5° 27 01'16	29.24385 AU
direct	164 Jul 29 j 17:20	16° 11 09'41		direct	172 Aug 16 j 11:58	3° 27 38'00	
conjunction	164 Nov 11 j 01:59	18° 11 38'50	1°40'23	conjunction	172 Nov 28 j 03:49	6° 27 06'30	1°20'30
minimum elong	164 Nov 11 j 01:59	18° 11 38'50	1°40'23	minimum elong	172 Nov 28 j 03:49	6° 27 06'30	1°20'30
max. Earth dist.	164 Nov 10 j 15:25	18° 11 37'51	31.28654 AU	max. Earth dist.	172 Nov 27 j 23:53	6° 27 06'08	31.23850 AU
retrograde	165 Feb 21 j 23:14	21° 11 06'45		retrograde	173 Mar 11 j 14:27	8° 27 35'21	
opposition	165 May 12 j 06:43	19° 11 44'20	1°46'11	opposition	173 May 30 j 12:58	7° 27 12'26	1°24'24
min. Earth dist.	165 May 12 j 15:57	19° 11 43'43	29.28627 AU	min. Earth dist.	173 May 30 j 16:33	7° 27 12'11	29.23437 AU
direct	165 Aug 01 j 04:48	18° 11 20'31		direct	173 Aug 19 j 01:37	5° 27 48'49	
conjunction	165 Nov 13 j 11:16	20° 11 49'37	1°38'22	conjunction	173 Nov 30 j 12:52	8° 27 17'13	1°17'28
minimum elong	165 Nov 13 j 11:16	20° 11 49'37	1°38'22	minimum elong	173 Nov 30 j 12:52	8° 27 17'13	1°17'27
max. Earth dist.	165 Nov 13 j 02:33	20° 11 48'48	31.28402 AU	max. Earth dist.	173 Nov 30 j 08:55	8° 27 16'51	31.22933 AU
retrograde	166 Feb 24 j 08:53	23° 11 17'39		retrograde	174 Mar 14 j 03:05	10° 27 46'11	
opposition	166 May 14 j 19:14	21° 11 55'14	1°43'57	opposition	174 Jun 02 j 01:38	9° 27 23'10	1°21'05
min. Earth dist.	166 May 15 j 04:07	21° 11 54'38	29.28346 AU	min. Earth dist.	174 Jun 02 j 04:12	9° 27 23'00	29.22562 AU
direct	166 Aug 03 j 17:14	20° 11 31'29		direct	174 Aug 21 j 12:55	7° 27 59'35	
conjunction	166 Nov 15 j 20:25	23° 11 00'32	1°36'13	conjunction	174 Dec 02 j 22:05	10° 27 27'55	1°14'19
minimum elong	166 Nov 15 j 20:26	23° 11 00'32	1°36'13	minimum elong	174 Dec 02 j 22:05	10° 27 27'55	1°14'18
max. Earth dist.	166 Nov 15 j 11:26	22° 11 59'41	31.28101 AU	max. Earth dist.	174 Dec 02 j 20:17	10° 27 27'45	31.22102 AU
retrograde	167 Feb 26 j 19:47	25° 11 28'42		retrograde	175 Mar 16 j 13:00	12° 27 57'01	
opposition	167 May 17 j 07:55	24° 11 06'15	1°41'35	opposition	175 Jun 04 j 14:30	11° 27 33'57	1°17'40
min. Earth dist.	167 May 17 j 15:33	24° 11 05'44	29.28002 AU	min. Earth dist.	175 Jun 04 j 16:11	11° 27 33'50	29.21773 AU
direct	167 Aug 06 j 04:06	22° 11 42'34		direct	175 Aug 24 j 01:19	10° 27 10'24	
conjunction	167 Nov 18 j 05:40	25° 11 11'32	1°33'55	conjunction	175 Dec 05 j 07:01	12° 27 38'40	1°11'03
minimum elong	167 Nov 18 j 05:40	25° 11 11'32	1°33'55	minimum elong	175 Dec 05 j 07:01	12° 27 38'40	1°11'03
max. Earth dist.	167 Nov 17 j 22:11	25° 11 10'50	31.27699 AU	max. Earth dist.	175 Dec 05 j 05:30	12° 27 38'32	31.21379 AU
retrograde	168 Feb 29 j 05:29	27° 11 39'51		retrograde	176 Mar 18 j 00:31	15° 27 07'56	
opposition	168 May 18 j 20:51	26° 11 17'22	1°39'03	opposition	176 Jun 06 j 03:23	13° 27 44'49	1°14'07
min. Earth dist.	168 May 19 j 04:43	26° 11 16'50	29.27538 AU	min. Earth dist.	176 Jun 06 j 03:16	13° 27 44'49	29.21097 AU
direct	168 Aug 07 j 15:23	24° 11 53'44		direct	176 Aug 25 j 12:18	12° 27 21'19	
conjunction	168 Nov 19 j 14:56	27° 11 22'37	1°31'29	conjunction	176 Dec 06 j 16:14	14° 27 49'34	1°07'41
minimum elong	168 Nov 19 j 14:57	27° 11 22'37	1°31'29	minimum elong	176 Dec 06 j 16:14	14° 27 49'34	1°07'41
max. Earth dist.	168 Nov 19 j 07:28	27° 11 21'55	31.27182 AU	max. Earth dist.	176 Dec 06 j 16:33	14° 27 49'35	31.20743 AU
retrograde	169 Mar 02 j 17:18	29° 11 51'03		retrograde	177 Mar 20 j 10:47	17° 27 18'59	
opposition	169 May 21 j 09:34	28° 11 28'30	1°36'23	opposition	177 Jun 08 j 16:17	15° 27 55'51	1°10'28
min. Earth dist.	169 May 21 j 15:48	28° 11 28'05	29.26944 AU	min. Earth dist.	177 Jun 08 j 16:00	15° 27 55'52	29.20494 AU
direct	169 Aug 10 j 02:23	27° 11 04'54		direct	177 Aug 27 j 23:18	14° 27 32'26	
conjunction	169 Nov 22 j 00:15	29° 11 33'42	1°28'55	conjunction	177 Dec 09 j 01:23	17° 27 00'38	1°04'13
minimum elong	169 Nov 22 j 00:15	29° 11 33'42	1°28'55	minimum elong	177 Dec 09 j 01:23	17° 27 00'38	1°04'13
max. Earth dist.	169 Nov 21 j 17:25	29° 11 33'03	31.26510 AU	max. Earth dist.	177 Dec 09 j 02:16	17° 27 00'43	31.20177 AU
	169 Dec 03 j 15:35	0° 27		retrograde	178 Mar 22 j 23:00	19° 27 30'15	
retrograde	170 Mar 05 j 04:16	2° 27 02'15		opposition	178 Jun 11 j 05:07	18° 27 07'05	1°06'43
opposition	170 May 23 j 22:30	0° 27 39'38	1°33'35	min. Earth dist.	178 Jun 11 j 02:50	18° 27 07'14	29.19929 AU

direct	178 Aug 30 j 10:01	16° \nearrow 43'44		opposition	186 Jun 29 j 13:49	5° \nwarrow 41'38	0°33'33
				min. Earth dist.	186 Jun 29 j 06:35	5° \nwarrow 42'07	29.12857 AU
conjunction	178 Dec 11 j 10:35	19° \nearrow 11'55	1°00'39	direct	186 Sep 17 j 06:03	4° \nwarrow 18'28	
minimum elong	178 Dec 11 j 10:36	19° \nearrow 11'55	1°00'39				
max. Earth dist.	178 Dec 11 j 12:23	19° \nearrow 12'05	31.19607 AU	conjunction	186 Dec 28 j 14:52	6° \nwarrow 46'15	0°29'22
retrograde	179 Mar 25 j 10:24	21° \nearrow 41'44		minimum elong	186 Dec 28 j 14:52	6° \nwarrow 46'15	0°29'22
opposition	179 Jun 13 j 18:12	20° \nearrow 18'33	1°02'51	max. Earth dist.	186 Dec 28 j 22:54	6° \nwarrow 47'00	31.12335 AU
min. Earth dist.	179 Jun 13 j 16:07	20° \nearrow 18'41	29.19350 AU	retrograde	187 Apr 12 j 11:47	9° \nwarrow 17'12	
direct	179 Sep 01 j 20:13	18° \nearrow 55'17		opposition	187 Jul 02 j 02:45	7° \nwarrow 53'24	0°29'07
				min. Earth dist.	187 Jul 01 j 17:22	7° \nwarrow 54'02	29.11859 AU
conjunction	179 Dec 13 j 20:00	21° \nearrow 23'26	0°56'59	direct	187 Sep 19 j 17:36	6° \nwarrow 30'14	
minimum elong	179 Dec 13 j 20:00	21° \nearrow 23'26	0°56'59				
max. Earth dist.	179 Dec 13 j 22:59	21° \nearrow 23'43	31.19017 AU	conjunction	187 Dec 31 j 00:29	8° \nwarrow 57'58	0°25'12
retrograde	180 Mar 26 j 22:56	23° \nearrow 53'26		minimum elong	187 Dec 31 j 00:29	8° \nwarrow 57'58	0°25'12
opposition	180 Jun 15 j 07:14	22° \nearrow 30'13	0°58'53	max. Earth dist.	187 Dec 31 j 09:27	8° \nwarrow 58'48	31.11384 AU
min. Earth dist.	180 Jun 15 j 03:27	22° \nearrow 30'28	29.18718 AU	retrograde	188 Apr 13 j 22:31	11° \nwarrow 29'05	
direct	180 Sep 03 j 06:57	21° \nearrow 07'00		opposition	188 Jul 03 j 15:52	10° \nwarrow 05'12	0°24'39
				min. Earth dist.	188 Jul 03 j 06:25	10° \nwarrow 05'51	29.10969 AU
conjunction	180 Dec 15 j 05:21	23° \nearrow 35'09	0°53'15	direct	188 Sep 21 j 03:48	8° \nwarrow 42'03	
minimum elong	180 Dec 15 j 05:22	23° \nearrow 35'09	0°53'14				
max. Earth dist.	180 Dec 15 j 08:24	23° \nearrow 35'26	31.18340 AU	conjunction	189 Jan 01 j 10:14	11° \nwarrow 09'45	0°21'00
retrograde	181 Mar 29 j 11:43	26° \nearrow 05'19		minimum elong	189 Jan 01 j 10:14	11° \nwarrow 09'45	0°21'00
opposition	181 Jun 17 j 20:26	24° \nearrow 42'04	0°54'51	max. Earth dist.	189 Jan 01 j 20:44	11° \nwarrow 10'45	31.10552 AU
min. Earth dist.	181 Jun 17 j 16:48	24° \nearrow 42'19	29.17992 AU	retrograde	189 Apr 16 j 10:29	13° \nwarrow 41'01	
direct	181 Sep 05 j 16:38	23° \nearrow 18'54		opposition	189 Jul 06 j 04:48	12° \nwarrow 17'06	0°20'08
				min. Earth dist.	189 Jul 05 j 17:25	12° \nwarrow 17'53	29.10171 AU
conjunction	181 Dec 17 j 15:03	25° \nearrow 47'00	0°49'26	direct	189 Sep 23 j 14:39	10° \nwarrow 53'59	
minimum elong	181 Dec 17 j 15:03	25° \nearrow 47'00	0°49'25				
max. Earth dist.	181 Dec 17 j 19:32	25° \nearrow 47'26	31.17552 AU	conjunction	190 Jan 03 j 19:57	13° \nwarrow 21'40	0°16'45
retrograde	182 Mar 31 j 23:57	28° \nearrow 17'20		minimum elong	190 Jan 03 j 19:58	13° \nwarrow 21'40	0°16'45
opposition	182 Jun 20 j 09:23	26° \nearrow 54'01	0°50'43	max. Earth dist.	190 Jan 04 j 06:39	13° \nwarrow 22'41	31.09790 AU
min. Earth dist.	182 Jun 20 j 04:42	26° \nearrow 54'20	29.17126 AU	retrograde	190 Apr 18 j 23:30	15° \nwarrow 53'07	
direct	182 Sep 08 j 05:57	25° \nearrow 30'53		opposition	190 Jul 08 j 17:47	14° \nwarrow 29'09	0°15'34
				min. Earth dist.	190 Jul 08 j 06:21	14° \nwarrow 29'56	29.09445 AU
conjunction	182 Dec 20 j 00:37	27° \nearrow 58'56	0°45'32	direct	190 Sep 26 j 00:02	13° \nwarrow 06'05	
minimum elong	182 Dec 20 j 00:37	27° \nearrow 58'57	0°45'32				
max. Earth dist.	182 Dec 20 j 04:35	27° \nearrow 59'19	31.16629 AU	conjunction	191 Jan 06 j 05:57	15° \nwarrow 33'46	0°12'29
	183 Feb 19 j 21:13	0° \nwarrow		minimum elong	191 Jan 06 j 05:56	15° \nwarrow 33'46	0°12'29
retrograde	183 Apr 03 j 14:12	0° \nwarrow 29'24		behind sun begin	191 Jan 06 j 01:42	15° \nwarrow 33'23	
	183 May 17 j 17:44	30° \nwarrow		behind sun end	191 Jan 06 j 10:10	15° \nwarrow 34'09	
opposition	183 Jun 22 j 22:36	29° \nearrow 06'00	0°46'31	max. Earth dist.	191 Jan 06 j 18:30	15° \nwarrow 34'57	31.09087 AU
min. Earth dist.	183 Jun 22 j 17:20	29° \nearrow 06'22	29.16142 AU	retrograde	191 Apr 21 j 12:07	18° \nwarrow 05'23	
direct	183 Sep 10 j 17:14	27° \nearrow 42'52		opposition	191 Jul 11 j 06:52	16° \nwarrow 41'24	0°10'59
	183 Dec 17 j 15:32	0° \nwarrow		min. Earth dist.	191 Jul 10 j 18:07	16° \nwarrow 42'16	29.08744 AU
conjunction	183 Dec 22 j 10:12	0° \nwarrow 10'52	0°41'34	direct	191 Sep 28 j 12:13	15° \nwarrow 18'23	
minimum elong	183 Dec 22 j 10:13	0° \nwarrow 10'52	0°41'35				
max. Earth dist.	183 Dec 22 j 15:55	0° \nwarrow 11'25	31.15589 AU	conjunction	192 Jan 08 j 15:47	17° \nwarrow 46'05	0°08'13
retrograde	184 Apr 05 j 00:36	2° \nwarrow 41'28		minimum elong	192 Jan 08 j 15:47	17° \nwarrow 46'05	0°08'13
opposition	184 Jun 24 j 11:48	1° \nwarrow 17'58	0°42'16	behind sun begin	192 Jan 08 j 10:05	17° \nwarrow 45'34	
min. Earth dist.	184 Jun 24 j 06:04	1° \nwarrow 18'21	29.15052 AU	behind sun end	192 Jan 08 j 21:29	17° \nwarrow 46'36	
	184 Aug 25 j 10:24	30° \nwarrow		max. Earth dist.	192 Jan 09 j 04:03	17° \nwarrow 47'14	31.08390 AU
direct	184 Sep 12 j 05:41	29° \nearrow 54'49		retrograde	192 Apr 23 j 02:54	20° \nwarrow 17'53	
	184 Sep 29 j 18:54	0° \nwarrow		opposition	192 Jul 12 j 20:04	18° \nwarrow 53'52	0°06'23
conjunction	184 Dec 23 j 19:45	2° \nwarrow 22'44	0°37'33	min. Earth dist.	192 Jul 12 j 06:47	18° \nwarrow 54'46	29.08038 AU
minimum elong	184 Dec 23 j 19:45	2° \nwarrow 22'44	0°37'34	direct	192 Sep 29 j 22:21	17° \nwarrow 30'53	
max. Earth dist.	184 Dec 24 j 01:28	2° \nwarrow 23'17	31.14487 AU				
retrograde	185 Apr 07 j 13:01	4° \nwarrow 53'27		conjunction	193 Jan 10 j 02:06	19° \nwarrow 58'36	0°03'55
opposition	185 Jun 27 j 00:43	3° \nwarrow 29'50	0°37'56	minimum elong	193 Jan 10 j 02:04	19° \nwarrow 58'36	0°03'55
min. Earth dist.	185 Jun 26 j 17:38	3° \nwarrow 30'19	29.13943 AU	behind sun begin	193 Jan 09 j 19:44	19° \nwarrow 58'02	
direct	185 Sep 14 j 17:49	2° \nwarrow 06'40		behind sun end	193 Jan 10 j 08:25	19° \nwarrow 59'11	
				max. Earth dist.	193 Jan 10 j 15:57	19° \nwarrow 59'55	31.07647 AU
conjunction	185 Dec 26 j 05:22	4° \nwarrow 34'31	0°33'29	retrograde	193 Apr 25 j 14:42	22° \nwarrow 30'35	
minimum elong	185 Dec 26 j 05:22	4° \nwarrow 34'31	0°33'29	opposition	193 Jul 15 j 09:07	21° \nwarrow 06'32	0°01'46
max. Earth dist.	185 Dec 26 j 12:38	4° \nwarrow 35'13	31.13377 AU	min. Earth dist.	193 Jul 14 j 19:35	21° \nwarrow 07'27	29.07254 AU
retrograde	186 Apr 09 j 23:58	7° \nwarrow 05'21		direct	193 Oct 02 j 10:08	19° \nwarrow 43'36	
				desc. node	193 Dec 02 j 10:37	20° \nwarrow 43'49	

conjunction	194 Jan 12 j 12:22	22° 3 11'20	0°00'-29	conjunction	201 Jan 27 j 13:59	7° 4 42'03	0°-30'-23
minimum elong	194 Jan 12 j 12:22	22° 3 11'20	0°00'30	minimum elong	201 Jan 27 j 13:58	7° 4 42'03	0°30'24
behind sun begin	194 Jan 12 j 05:59	22° 3 10'45		max. Earth dist.	201 Jan 28 j 07:43	7° 4 43'44	30.99057 AU
behind sun end	194 Jan 12 j 18:45	22° 3 11'55		retrograde	201 May 13 j 20:27	10° 4 15'09	
max. Earth dist.	194 Jan 13 j 01:53	22° 3 12'36	31.06818 AU	opposition	201 Aug 02 j 17:20	8° 4 50'30	0°-34'-43
retrograde	194 Apr 28 j 05:07	24° 3 43'29		min. Earth dist.	201 Aug 01 j 22:53	8° 4 51'46	28.98630 AU
opposition	194 Jul 17 j 22:16	23° 3 19'24	0°-2'-51	direct	201 Oct 20 j 03:34	7° 4 27'29	
min. Earth dist.	194 Jul 17 j 07:48	23° 3 20'23	29.06367 AU				
direct	194 Oct 04 j 22:02	21° 3 56'29		conjunction	202 Jan 30 j 00:50	9° 4 55'11	0°-34'-31
				minimum elong	202 Jan 30 j 00:50	9° 4 55'11	0°34'32
conjunction	195 Jan 14 j 22:43	24° 3 24'13	0°-4'-52	max. Earth dist.	202 Jan 30 j 20:18	9° 4 57'01	30.98166 AU
minimum elong	195 Jan 14 j 22:44	24° 3 24'13	0°04'53	retrograde	202 May 16 j 08:34	12° 4 28'25	
behind sun begin	195 Jan 14 j 16:28	24° 3 23'39		min. Earth dist.	202 Aug 04 j 11:11	11° 4 05'01	28.97789 AU
behind sun end	195 Jan 15 j 04:59	24° 3 24'47		opposition	202 Aug 05 j 06:11	11° 4 03'43	0°-39'-8
max. Earth dist.	195 Jan 15 j 13:13	24° 3 25'35	31.05852 AU	direct	202 Oct 22 j 15:00	9° 4 40'43	
retrograde	195 Apr 30 j 17:33	26° 3 56'32					
opposition	195 Jul 20 j 11:34	25° 3 32'22	0°-7'-28	conjunction	203 Feb 01 j 11:31	12° 4 08'26	0°-38'-37
min. Earth dist.	195 Jul 19 j 21:30	25° 3 33'20	29.05336 AU	minimum elong	203 Feb 01 j 11:30	12° 4 08'26	0°38'38
direct	195 Oct 07 j 10:21	24° 3 09'28		max. Earth dist.	203 Feb 02 j 06:59	12° 4 10'17	30.97377 AU
				retrograde	203 May 19 j 00:01	14° 4 41'49	
conjunction	196 Jan 17 j 09:14	26° 3 37'11	0°-9'-9	opposition	203 Aug 07 j 19:05	13° 4 17'05	0°-43'-29
minimum elong	196 Jan 17 j 09:14	26° 3 37'11	0°09'10	min. Earth dist.	203 Aug 06 j 22:58	13° 4 18'28	28.97039 AU
behind sun begin	196 Jan 17 j 03:46	26° 3 36'42		direct	203 Oct 25 j 02:53	11° 4 54'06	
behind sun end	196 Jan 17 j 14:42	26° 3 37'41					
max. Earth dist.	196 Jan 17 j 23:55	26° 3 38'34	31.04770 AU	conjunction	204 Feb 03 j 22:34	14° 4 21'52	0°-42'-40
retrograde	196 May 02 j 06:19	29° 3 09'38		minimum elong	204 Feb 03 j 22:34	14° 4 21'52	0°42'41
min. Earth dist.	196 Jul 21 j 09:07	27° 3 46'28	29.04196 AU	max. Earth dist.	204 Feb 04 j 19:11	14° 4 23'49	30.96641 AU
opposition	196 Jul 22 j 00:38	27° 3 45'24	0°-12'-5		204 Feb 20 j 20:43	15° 4	
direct	196 Oct 08 j 22:20	26° 3 22'29		retrograde	204 May 20 j 13:04	16° 4 55'24	
				opposition	204 Aug 09 j 07:56	15° 4 30'39	0°-47'-47
conjunction	197 Jan 18 j 19:41	28° 3 50'10	0°-13'-27	min. Earth dist.	204 Aug 08 j 12:14	15° 4 32'00	28.96326 AU
minimum elong	197 Jan 18 j 19:41	28° 3 50'10	0°13'28		204 Aug 28 j 07:58	15° 4	
behind sun begin	197 Jan 18 j 16:00	28° 3 49'50		direct	204 Oct 26 j 14:37	14° 4 07'41	
behind sun end	197 Jan 18 j 23:23	28° 3 50'31			204 Dec 21 j 21:23	15° 4	
max. Earth dist.	197 Jan 19 j 10:40	28° 3 51'35	31.03580 AU				
	197 Feb 19 j 15:51	0° 4		conjunction	205 Feb 05 j 09:45	16° 4 35'29	0°-46'-39
retrograde	197 May 04 j 17:22	1° 4 22'46		minimum elong	205 Feb 05 j 09:45	16° 4 35'29	0°46'40
	197 Jul 23 j 14:41	30° 4		max. Earth dist.	205 Feb 06 j 06:37	16° 4 37'28	30.95936 AU
opposition	197 Jul 24 j 13:47	29° 3 58'25	0°-16'-40	retrograde	205 May 23 j 02:57	19° 4 09'10	
min. Earth dist.	197 Jul 23 j 22:47	29° 3 59'27	29.02983 AU	opposition	205 Aug 11 j 20:42	17° 4 44'22	0°-52'00
direct	197 Oct 11 j 09:12	28° 3 35'29		min. Earth dist.	205 Aug 10 j 23:45	17° 4 45'49	28.95609 AU
	197 Dec 23 j 15:26	0° 4		direct	205 Oct 29 j 02:29	16° 4 21'26	
conjunction	198 Jan 21 j 06:15	1° 4 03'09	0°-17'-43	conjunction	206 Feb 07 j 21:03	18° 4 49'16	0°-50'-34
minimum elong	198 Jan 21 j 06:15	1° 4 03'09	0°17'44	minimum elong	206 Feb 07 j 21:03	18° 4 49'16	0°50'35
max. Earth dist.	198 Jan 21 j 22:27	1° 4 04'40	31.02358 AU	max. Earth dist.	206 Feb 08 j 17:54	18° 4 51'15	30.95178 AU
retrograde	198 May 07 j 05:19	3° 4 35'50		retrograde	206 May 25 j 15:29	21° 4 23'05	
min. Earth dist.	198 Jul 26 j 10:01	2° 4 12'33	29.01765 AU	opposition	206 Aug 14 j 09:36	19° 4 58'15	0°-56'-9
opposition	198 Jul 27 j 02:37	2° 4 11'25	0°-21'-14	min. Earth dist.	206 Aug 13 j 13:30	19° 4 59'38	28.94827 AU
direct	198 Oct 13 j 20:30	0° 4 48'26		direct	206 Oct 31 j 13:44	18° 4 35'19	
conjunction	199 Jan 23 j 16:43	3° 4 16'05	0°-21'-58	conjunction	207 Feb 10 j 08:38	21° 4 03'12	0°-54'-24
minimum elong	199 Jan 23 j 16:43	3° 4 16'05	0°22'00	minimum elong	207 Feb 10 j 08:37	21° 4 03'12	0°54'26
max. Earth dist.	199 Jan 24 j 08:55	3° 4 17'37	31.01161 AU	max. Earth dist.	207 Feb 11 j 06:14	21° 4 05'15	30.94354 AU
retrograde	199 May 09 j 18:03	5° 4 48'55		retrograde	207 May 28 j 05:01	23° 4 37'07	
opposition	199 Jul 29 j 15:42	4° 4 24'24	0°-25'-46	opposition	207 Aug 16 j 22:26	22° 4 12'14	-1°00'-13
min. Earth dist.	199 Jul 28 j 23:08	4° 4 25'32	29.00618 AU	min. Earth dist.	207 Aug 16 j 01:13	22° 4 13'42	28.93951 AU
direct	199 Oct 16 j 06:20	3° 4 01'24		direct	207 Nov 03 j 01:58	20° 4 49'17	
conjunction	200 Jan 26 j 03:20	5° 4 29'02	0°-26'-11	conjunction	208 Feb 12 j 20:07	23° 4 17'10	0°-58'-10
minimum elong	200 Jan 26 j 03:19	5° 4 29'02	0°26'12	minimum elong	208 Feb 12 j 20:07	23° 4 17'10	0°58'11
max. Earth dist.	200 Jan 26 j 21:23	5° 4 30'45	31.00055 AU	max. Earth dist.	208 Feb 13 j 17:01	23° 4 19'09	30.93420 AU
retrograde	200 May 11 j 06:08	8° 4 02'00		retrograde	208 May 29 j 17:21	25° 4 51'12	
min. Earth dist.	200 Jul 30 j 10:40	6° 4 38'38	28.99563 AU	opposition	208 Aug 18 j 11:23	24° 4 26'15	-1°-4'-12
opposition	200 Jul 31 j 04:34	6° 4 37'25	0°-30'-16	min. Earth dist.	208 Aug 17 j 14:58	24° 4 27'39	28.92975 AU
direct	200 Oct 17 j 18:16	5° 4 14'24		direct	208 Nov 04 j 12:16	23° 4 03'15	

conjunction	209 Feb 14 j 07:56	25° \approx 31'09	-1°-1'-51	direct	216 Nov 22 j 08:14	10° \times 54'57	
minimum elong	209 Feb 14 j 07:55	25° \approx 31'09	1°01'52				
max. Earth dist.	209 Feb 15 j 05:57	25° \approx 33'14	30.92396 AU	conjunction	217 Mar 04 j 07:12	13° \times 23'14	-1°-27'-30
retrograde	209 Jun 01 j 04:54	28° \approx 05'14		minimum elong	217 Mar 04 j 07:12	13° \times 23'14	1°27'31
opposition	209 Aug 20 j 23:56	26° \approx 40'12	-1°-8'-5	max. Earth dist.	217 Mar 05 j 07:13	13° \times 25'30	30.86378 AU
min. Earth dist.	209 Aug 20 j 02:53	26° \approx 41'40	28.91917 AU	retrograde	217 Jun 19 j 17:08	15° \times 58'01	
direct	209 Nov 07 j 00:19	25° \approx 17'09		min. Earth dist.	217 Sep 07 j 04:49	14° \times 34'18	28.86308 AU
				opposition	217 Sep 08 j 03:33	14° \times 32'43	-1°-35'-1
conjunction	210 Feb 16 j 19:32	27° \approx 45'04	-1°-5'-26	direct	217 Nov 24 j 18:08	13° \times 09'34	
minimum elong	210 Feb 16 j 19:31	27° \approx 45'04	1°05'26				
max. Earth dist.	210 Feb 17 j 16:42	27° \approx 47'04	30.91326 AU	conjunction	218 Mar 06 j 19:48	15° \times 37'56	-1°-30'-10
	210 Apr 30 j 06:03	0° \times		minimum elong	218 Mar 06 j 19:47	15° \times 37'56	1°30'10
retrograde	210 Jun 03 j 18:43	0° \times 19'13		max. Earth dist.	218 Mar 07 j 20:51	15° \times 40'19	30.86035 AU
	210 Jul 09 j 01:11	30° \times		retrograde	218 Jun 22 j 05:27	18° \times 12'49	
opposition	210 Aug 23 j 12:38	28° \approx 54'06	-1°-11'-52	opposition	218 Sep 10 j 15:52	16° \times 47'32	-1°-37'-48
min. Earth dist.	210 Aug 22 j 15:33	28° \approx 55'34	28.90860 AU	min. Earth dist.	218 Sep 09 j 16:42	16° \times 49'09	28.85954 AU
direct	210 Nov 09 j 09:57	27° \approx 30'59		direct	218 Nov 27 j 05:49	15° \times 24'23	
conjunction	211 Feb 19 j 07:11	29° \approx 58'54	-1°-8'-55	conjunction	219 Mar 09 j 08:17	17° \times 52'51	-1°-32'-41
minimum elong	211 Feb 19 j 07:10	29° \approx 58'54	1°08'56	minimum elong	219 Mar 09 j 08:16	17° \times 52'51	1°32'42
	211 Feb 19 j 18:44	0° \times		max. Earth dist.	219 Mar 10 j 08:04	17° \times 55'06	30.85657 AU
max. Earth dist.	211 Feb 20 j 05:48	0° \times 01'03	30.90276 AU	retrograde	219 Jun 24 j 19:47	20° \times 27'49	
retrograde	211 Jun 06 j 06:41	2° \times 33'08		min. Earth dist.	219 Sep 12 j 05:40	19° \times 04'06	28.85551 AU
min. Earth dist.	211 Aug 25 j 03:52	1° \times 09'25	28.89847 AU	opposition	219 Sep 13 j 04:18	19° \times 02'31	-1°-40'-26
opposition	211 Aug 26 j 01:14	1° \times 07'56	-1°-15'-32	direct	219 Nov 29 j 15:06	17° \times 39'22	
	211 Oct 12 j 15:54	30° \times					
direct	211 Nov 11 j 21:50	29° \approx 44'47		conjunction	220 Mar 10 j 21:14	20° \times 07'54	-1°-35'-5
	211 Dec 11 j 14:43	0° \times		minimum elong	220 Mar 10 j 21:14	20° \times 07'54	1°35'05
				max. Earth dist.	220 Mar 11 j 21:41	20° \times 10'13	30.85197 AU
conjunction	212 Feb 21 j 18:56	2° \times 12'43	-1°-12'-17	retrograde	220 Jun 26 j 07:32	22° \times 42'54	
minimum elong	212 Feb 21 j 18:56	2° \times 12'43	1°12'18	opposition	220 Sep 14 j 16:31	21° \times 17'36	-1°-42'-55
max. Earth dist.	212 Feb 22 j 17:15	2° \times 14'50	30.89315 AU	min. Earth dist.	220 Sep 13 j 18:18	21° \times 19'09	28.85043 AU
retrograde	212 Jun 07 j 21:43	4° \times 47'02		direct	220 Dec 01 j 03:06	19° \times 54'25	
opposition	212 Aug 27 j 13:38	3° \times 21'46	-1°-19'-5				
min. Earth dist.	212 Aug 26 j 15:27	3° \times 23'18	28.88952 AU	conjunction	221 Mar 13 j 10:10	22° \times 23'00	-1°-37'-20
direct	212 Nov 13 j 09:17	1° \times 58'33		minimum elong	221 Mar 13 j 10:10	22° \times 23'00	1°37'21
				max. Earth dist.	221 Mar 14 j 09:23	22° \times 25'12	30.84650 AU
conjunction	213 Feb 23 j 06:50	4° \times 26'33	-1°-15'-34	retrograde	221 Jun 28 j 21:55	24° \times 58'01	
minimum elong	213 Feb 23 j 06:50	4° \times 26'33	1°15'35	min. Earth dist.	221 Sep 16 j 06:30	23° \times 34'14	28.84458 AU
max. Earth dist.	213 Feb 24 j 06:09	4° \times 28'46	30.88466 AU	opposition	221 Sep 17 j 04:45	23° \times 32'41	-1°-45'-14
retrograde	213 Jun 10 j 10:18	7° \times 00'57		direct	221 Dec 03 j 14:28	22° \times 09'26	
min. Earth dist.	213 Aug 29 j 04:18	5° \times 37'09	28.88178 AU				
opposition	213 Aug 30 j 02:08	5° \times 35'38	-1°-22'-32	conjunction	222 Mar 15 j 23:02	24° \times 38'04	-1°-39'-25
direct	213 Nov 15 j 20:47	4° \times 12'25		minimum elong	222 Mar 15 j 23:02	24° \times 38'04	1°39'26
				max. Earth dist.	222 Mar 16 j 22:38	24° \times 40'18	30.84022 AU
conjunction	214 Feb 25 j 18:42	6° \times 40'28	-1°-18'-44	retrograde	222 Jul 01 j 09:52	27° \times 13'05	
minimum elong	214 Feb 25 j 18:42	6° \times 40'28	1°18'44	opposition	222 Sep 19 j 16:58	25° \times 47'42	-1°-47'-24
max. Earth dist.	214 Feb 26 j 18:18	6° \times 42'42	30.87763 AU	min. Earth dist.	222 Sep 18 j 19:41	25° \times 49'11	28.83819 AU
retrograde	214 Jun 13 j 00:48	9° \times 14'57		direct	222 Dec 06 j 01:43	24° \times 24'23	
opposition	214 Sep 01 j 14:27	7° \times 49'37	-1°-25'-51				
min. Earth dist.	214 Aug 31 j 15:16	7° \times 51'14	28.87548 AU	conjunction	223 Mar 18 j 12:02	26° \times 53'03	-1°-41'-22
direct	214 Nov 18 j 08:40	6° \times 26'24		minimum elong	223 Mar 18 j 12:02	26° \times 53'03	1°41'24
				max. Earth dist.	223 Mar 19 j 11:17	26° \times 55'14	30.83395 AU
conjunction	215 Feb 28 j 06:42	8° \times 54'31	-1°-21'-46	retrograde	223 Jul 04 j 00:38	29° \times 28'03	
minimum elong	215 Feb 28 j 06:41	8° \times 54'31	1°21'48	min. Earth dist.	223 Sep 21 j 06:56	28° \times 04'09	28.83210 AU
max. Earth dist.	215 Mar 01 j 06:28	8° \times 56'46	30.87192 AU	opposition	223 Sep 22 j 04:57	28° \times 02'36	-1°-49'-24
retrograde	215 Jun 15 j 14:20	11° \times 29'06		direct	223 Dec 08 j 14:19	26° \times 39'12	
min. Earth dist.	215 Sep 03 j 04:25	10° \times 05'20	28.87051 AU				
opposition	215 Sep 04 j 02:56	10° \times 03'46	-1°-29'-3	conjunction	224 Mar 20 j 01:02	29° \times 07'55	-1°-43'-10
direct	215 Nov 20 j 19:55	8° \times 40'34		minimum elong	224 Mar 20 j 01:02	29° \times 07'55	1°43'11
				max. Earth dist.	224 Mar 21 j 00:01	29° \times 10'05	30.82802 AU
conjunction	216 Mar 01 j 18:54	11° \times 08'46	-1°-24'-42		224 Apr 12 j 12:08	0° \times	
minimum elong	216 Mar 01 j 18:54	11° \times 08'46	1°24'42	retrograde	224 Jul 05 j 14:07	1° \times 42'54	
max. Earth dist.	216 Mar 02 j 19:36	11° \times 11'06	30.86753 AU	opposition	224 Sep 23 j 17:01	0° \times 17'24	-1°-51'-14
retrograde	216 Jun 17 j 04:48	13° \times 43'27		min. Earth dist.	224 Sep 22 j 20:04	0° \times 18'52	28.82666 AU
opposition	216 Sep 05 j 15:15	12° \times 18'07	-1°-32'-6		224 Oct 04 j 02:26	30° \times	
min. Earth dist.	216 Sep 04 j 15:35	12° \times 19'46	28.86652 AU	direct	224 Dec 10 j 02:32	28° \times 53'57	

	225 Feb 11 j 22:08	0°♈		minimum elong	233 Apr 10 j 02:24	19°♈23'17	1°52'00
				max. Earth dist.	233 Apr 10 j 22:35	19°♈25'11	30.81704 AU
conjunction	225 Mar 22 j 14:13	1°♈22'42	-1°-44'-48	retrograde	233 Jul 26 j 13:25	21°♈58'13	
minimum elong	225 Mar 22 j 14:12	1°♈22'42	1°44'50	min. Earth dist.	233 Oct 13 j 09:13	20°♈34'09	28.81762 AU
max. Earth dist.	225 Mar 23 j 13:39	1°♈24'55	30.82308 AU	opposition	233 Oct 14 j 02:53	20°♈32'54	-1°-59'-50
retrograde	225 Jul 08 j 04:00	3°♈57'39		direct	233 Dec 30 j 10:08	19°♈09'16	
min. Earth dist.	225 Sep 25 j 06:51	2°♈33'40	28.82229 AU				
opposition	225 Sep 26 j 04:44	2°♈32'08	-1°-52'-54	conjunction	234 Apr 12 j 16:25	21°♈38'49	-1°-52'-7
direct	225 Dec 12 j 15:45	1°♈08'37		minimum elong	234 Apr 12 j 16:26	21°♈38'49	1°52'07
				max. Earth dist.	234 Apr 13 j 12:13	21°♈40'41	30.81533 AU
conjunction	226 Mar 25 j 03:16	3°♈37'26	-1°-46'-17	retrograde	234 Jul 29 j 03:24	24°♈13'40	
minimum elong	226 Mar 25 j 03:16	3°♈37'26	1°46'17	opposition	234 Oct 16 j 14:22	22°♈48'22	-1°-59'-53
max. Earth dist.	226 Mar 26 j 01:57	3°♈39'34	30.81932 AU	min. Earth dist.	234 Oct 15 j 20:23	22°♈49'39	28.81550 AU
retrograde	226 Jul 10 j 16:51	6°♈12'23		direct	235 Jan 01 j 23:45	21°♈24'40	
opposition	226 Sep 28 j 16:41	4°♈46'50	-1°-54'-24				
min. Earth dist.	226 Sep 27 j 19:41	4°♈48'19	28.81934 AU	conjunction	235 Apr 15 j 06:16	23°♈54'17	-1°-52'-4
direct	226 Dec 15 j 02:10	3°♈23'18		minimum elong	235 Apr 15 j 06:16	23°♈54'17	1°52'06
				max. Earth dist.	235 Apr 16 j 00:42	23°♈56'01	30.81301 AU
conjunction	227 Mar 27 j 16:27	5°♈52'10	-1°-47'-36	retrograde	235 Jul 31 j 16:39	26°♈29'04	
minimum elong	227 Mar 27 j 16:27	5°♈52'10	1°47'37	min. Earth dist.	235 Oct 18 j 09:30	25°♈04'55	28.81313 AU
max. Earth dist.	227 Mar 28 j 16:12	5°♈54'24	30.81707 AU	opposition	235 Oct 19 j 01:57	25°♈03'45	-1°-59'-45
retrograde	227 Jul 13 j 05:59	8°♈27'07		direct	236 Jan 04 j 10:55	23°♈39'58	
min. Earth dist.	227 Sep 30 j 06:57	7°♈03'06	28.81772 AU				
opposition	227 Oct 01 j 04:28	7°♈01'35	-1°-55'-43	conjunction	236 Apr 16 j 20:25	26°♈09'39	-1°-51'-52
direct	227 Dec 17 j 14:43	5°♈38'01		minimum elong	236 Apr 16 j 20:25	26°♈09'39	1°51'52
				max. Earth dist.	236 Apr 17 j 15:14	26°♈11'25	30.81072 AU
conjunction	228 Mar 29 j 05:45	8°♈06'59	-1°-48'-45	retrograde	236 Aug 02 j 06:28	28°♈44'19	
minimum elong	228 Mar 29 j 05:45	8°♈06'59	1°48'46	opposition	236 Oct 20 j 13:08	27°♈19'00	-1°-59'-27
max. Earth dist.	228 Mar 30 j 04:15	8°♈09'06	30.81613 AU	min. Earth dist.	236 Oct 19 j 20:40	27°♈20'10	28.81095 AU
retrograde	228 Jul 14 j 19:45	10°♈41'56		direct	237 Jan 06 j 00:32	25°♈55'09	
opposition	228 Oct 02 j 16:12	9°♈16'25	-1°-56'-51				
min. Earth dist.	228 Oct 01 j 19:11	9°♈17'54	28.81744 AU	conjunction	237 Apr 19 j 10:20	28°♈24'53	-1°-51'-29
direct	228 Dec 19 j 00:29	7°♈52'51		minimum elong	237 Apr 19 j 10:20	28°♈24'53	1°51'31
				max. Earth dist.	237 Apr 20 j 03:32	28°♈26'30	30.80890 AU
conjunction	229 Mar 31 j 19:18	10°♈21'55	-1°-49'-44	retrograde	237 Jun 03 j 20:44	0°♈	
minimum elong	229 Mar 31 j 19:18	10°♈21'55	1°49'46		237 Aug 04 j 19:20	0°♈59'28	
max. Earth dist.	229 Apr 01 j 18:38	10°♈24'06	30.81626 AU		237 Oct 07 j 13:29	30°♈	
retrograde	229 Jul 17 j 07:17	12°♈56'52		min. Earth dist.	237 Oct 22 j 08:46	29°♈35'15	28.80965 AU
min. Earth dist.	229 Oct 04 j 07:16	11°♈32'53	28.81790 AU	opposition	237 Oct 23 j 00:28	29°♈34'09	-1°-58'-57
opposition	229 Oct 05 j 03:57	11°♈31'25	-1°-57'-49	direct	238 Jan 08 j 11:22	28°♈10'13	
direct	229 Dec 21 j 12:14	10°♈07'52			238 Apr 04 j 00:34	0°♈	
conjunction	230 Apr 03 j 08:42	12°♈37'01	-1°-50'-33	conjunction	238 Apr 22 j 00:17	0°♈40'01	-1°-50'-57
minimum elong	230 Apr 03 j 08:42	12°♈37'01	1°50'34	minimum elong	238 Apr 22 j 00:17	0°♈40'01	1°50'57
max. Earth dist.	230 Apr 04 j 06:47	12°♈39'05	30.81705 AU	max. Earth dist.	238 Apr 22 j 18:10	0°♈41'42	30.80809 AU
retrograde	230 Jul 19 j 21:19	15°♈11'59		retrograde	238 Aug 07 j 06:20	3°♈14'30	
opposition	230 Oct 07 j 15:43	13°♈46'35	-1°-58'-36	opposition	238 Oct 25 j 11:43	1°♈49'12	-1°-58'-16
min. Earth dist.	230 Oct 06 j 19:07	13°♈48'03	28.81880 AU	min. Earth dist.	238 Oct 24 j 20:19	1°♈50'17	28.80940 AU
direct	230 Dec 23 j 22:48	12°♈23'02		direct	239 Jan 10 j 23:48	0°♈25'13	
conjunction	231 Apr 05 j 22:30	14°♈52'18	-1°-51'-12	conjunction	239 Apr 24 j 14:15	2°♈55'04	-1°-50'-14
minimum elong	231 Apr 05 j 22:30	14°♈52'18	1°51'14	minimum elong	239 Apr 24 j 14:15	2°♈55'04	1°50'15
max. Earth dist.	231 Apr 06 j 20:46	14°♈54'24	30.81776 AU	max. Earth dist.	239 Apr 25 j 06:43	2°♈56'37	30.80865 AU
retrograde	231 Jul 22 j 09:35	17°♈27'17		retrograde	239 Aug 09 j 19:39	5°♈29'28	
min. Earth dist.	231 Oct 09 j 08:15	16°♈03'18	28.81931 AU	opposition	239 Oct 27 j 22:47	4°♈04'11	-1°-57'-25
opposition	231 Oct 10 j 03:28	16°♈01'56	-1°-59'-11	min. Earth dist.	239 Oct 27 j 07:26	4°♈05'17	28.81072 AU
direct	231 Dec 26 j 09:21	14°♈38'22		direct	240 Jan 13 j 10:12	2°♈40'09	
conjunction	232 Apr 07 j 12:27	17°♈07'45	-1°-51'-40	conjunction	240 Apr 26 j 04:26	5°♈10'06	-1°-49'-21
minimum elong	232 Apr 07 j 12:27	17°♈07'45	1°51'41	minimum elong	240 Apr 26 j 04:26	5°♈10'06	1°49'21
max. Earth dist.	232 Apr 08 j 09:34	17°♈09'44	30.81798 AU	max. Earth dist.	240 Apr 26 j 21:15	5°♈11'40	30.81062 AU
retrograde	232 Jul 24 j 00:18	19°♈42'43		retrograde	240 Aug 11 j 07:01	7°♈44'24	
opposition	232 Oct 11 j 15:10	18°♈17'24	-1°-59'-36	opposition	240 Oct 29 j 09:59	6°♈19'10	-1°-56'-23
min. Earth dist.	232 Oct 10 j 19:48	18°♈18'46	28.81901 AU	min. Earth dist.	240 Oct 28 j 19:44	6°♈20'11	28.81337 AU
direct	232 Dec 27 j 21:56	16°♈53'48		direct	241 Jan 14 j 20:25	4°♈55'06	
conjunction	233 Apr 10 j 02:24	19°♈23'17	-1°-51'-59	conjunction	241 Apr 28 j 18:30	7°♈25'08	-1°-48'-17

minimum elong	241 Apr 28 j 18:30	7°825'08	1°48'19	minimum elong	249 May 17 j 13:32	25°825'53	1°34'07
max. Earth dist.	241 Apr 29 j 10:22	7°826'37	30.81407 AU	max. Earth dist.	249 May 17 j 22:29	25°826'43	30.84428 AU
retrograde	241 Aug 13 j 19:49	9°859'21		retrograde	249 Sep 01 j 00:51	27°859'06	
opposition	241 Oct 31 j 20:58	8°834'11	-1°-55'-10	opposition	249 Nov 18 j 12:30	26°834'18	-1°-39'-19
min. Earth dist.	241 Oct 31 j 06:21	8°835'13	28.81737 AU	min. Earth dist.	249 Nov 18 j 05:31	26°834'48	28.84668 AU
direct	242 Jan 17 j 08:44	7°810'06		direct	250 Feb 04 j 09:12	25°809'49	
conjunction	242 May 01 j 08:40	9°840'13	-1°-47'-4	conjunction	250 May 20 j 03:45	27°840'30	-1°-31'-39
minimum elong	242 May 01 j 08:40	9°840'13	1°47'05	minimum elong	250 May 20 j 03:46	27°840'30	1°31'40
max. Earth dist.	242 May 02 j 00:03	9°841'40	30.81855 AU	max. Earth dist.	250 May 20 j 11:24	27°841'13	30.84775 AU
retrograde	242 Aug 16 j 07:42	12°814'22			250 Aug 06 j 00:53	0°II	
opposition	242 Nov 03 j 08:05	10°849'16	-1°-53'-46	retrograde	250 Sep 03 j 12:51	0°II13'33	
min. Earth dist.	242 Nov 02 j 19:04	10°850'11	28.82223 AU		250 Oct 02 j 06:19	30°R8	
direct	243 Jan 19 j 19:52	9°825'10		opposition	250 Nov 20 j 23:03	28°848'48	-1°-36'-38
conjunction	243 May 03 j 22:57	11°855'24	-1°-45'-41	min. Earth dist.	250 Nov 20 j 15:49	28°849'19	28.85063 AU
minimum elong	243 May 03 j 22:58	11°855'24	1°45'42	direct	251 Feb 06 j 21:30	27°824'14	
max. Earth dist.	243 May 04 j 13:48	11°856'47	30.82371 AU	conjunction	251 May 22 j 18:00	29°855'00	-1°-29'-4
retrograde	243 Aug 18 j 21:30	14°829'27		minimum elong	251 May 22 j 18:00	29°855'00	1°29'05
opposition	243 Nov 05 j 19:04	13°804'26	-1°-52'-11	max. Earth dist.	251 May 23 j 01:14	29°855'40	30.85224 AU
min. Earth dist.	243 Nov 05 j 05:53	13°805'22	28.82728 AU		251 May 24 j 23:40	0°II	
direct	244 Jan 22 j 08:47	11°840'18		retrograde	251 Sep 05 j 23:36	2°II27'54	
conjunction	244 May 05 j 13:23	14°810'39	-1°-44'-8	opposition	251 Nov 23 j 09:43	1°II03'12	-1°-33'-48
minimum elong	244 May 05 j 13:23	14°810'39	1°44'08	min. Earth dist.	251 Nov 23 j 04:00	1°II03'36	28.85579 AU
max. Earth dist.	244 May 06 j 02:35	14°811'53	30.82858 AU	direct	252 Jan 04 j 05:32	30°R8	
	244 May 27 j 21:53	15°8			252 Feb 09 j 08:18	29°838'35	
retrograde	244 Aug 20 j 10:42	16°844'36			252 Mar 16 j 04:15	0°II	
opposition	244 Nov 07 j 06:07	15°819'38	-1°-50'-27	conjunction	252 May 24 j 08:16	2°II09'25	-1°-26'-22
min. Earth dist.	244 Nov 06 j 18:47	15°820'26	28.83191 AU	minimum elong	252 May 24 j 08:17	2°II09'25	1°26'22
	244 Nov 18 j 21:10	15°R8		max. Earth dist.	252 May 24 j 14:54	2°II10'02	30.85822 AU
direct	245 Jan 23 j 20:06	13°855'29		retrograde	252 Sep 07 j 12:09	4°II42'10	
	245 Mar 28 j 12:21	15°8		opposition	252 Nov 24 j 20:08	3°II17'33	-1°-30'-50
conjunction	245 May 08 j 03:58	16°825'54	-1°-42'-25	min. Earth dist.	252 Nov 24 j 13:58	3°II17'59	28.86240 AU
minimum elong	245 May 08 j 03:58	16°825'54	1°42'26	direct	253 Feb 10 j 20:39	1°II52'55	
max. Earth dist.	245 May 08 j 16:59	16°827'07	30.83288 AU	conjunction	253 May 26 j 22:28	4°II23'50	-1°-23'-31
retrograde	245 Aug 23 j 00:24	18°859'44		minimum elong	253 May 26 j 22:29	4°II23'50	1°23'33
opposition	245 Nov 09 j 17:08	17°834'49	-1°-48'-32	max. Earth dist.	253 May 27 j 03:58	4°II24'20	30.86562 AU
min. Earth dist.	245 Nov 09 j 06:09	17°835'36	28.83567 AU	retrograde	253 Sep 10 j 00:21	6°II56'28	
direct	246 Jan 26 j 10:16	16°810'37		opposition	253 Nov 27 j 06:47	5°II31'55	-1°-27'-43
conjunction	246 May 10 j 18:13	18°841'07	-1°-40'-34	min. Earth dist.	253 Nov 27 j 01:59	5°II32'16	28.87057 AU
minimum elong	246 May 10 j 18:13	18°841'07	1°40'34	direct	254 Feb 13 j 07:48	4°II07'17	
max. Earth dist.	246 May 11 j 05:06	18°842'08	30.83631 AU	conjunction	254 May 29 j 12:38	6°II38'17	-1°-20'-33
retrograde	246 Aug 25 j 13:18	21°814'48		minimum elong	254 May 29 j 12:39	6°II38'17	1°20'33
opposition	246 Nov 12 j 04:12	19°849'55	-1°-46'-28	max. Earth dist.	254 May 29 j 18:19	6°II38'49	30.87452 AU
min. Earth dist.	246 Nov 11 j 18:27	19°850'37	28.83875 AU	retrograde	254 Sep 12 j 13:23	9°II10'48	
direct	247 Jan 28 j 21:52	18°825'39		opposition	254 Nov 29 j 17:17	7°II46'22	-1°-24'-28
conjunction	247 May 13 j 08:48	20°856'12	-1°-38'-33	min. Earth dist.	254 Nov 29 j 12:37	7°II46'42	28.87982 AU
minimum elong	247 May 13 j 08:48	20°856'12	1°38'35	direct	255 Feb 15 j 21:46	6°II21'44	
max. Earth dist.	247 May 13 j 19:43	20°857'13	30.83910 AU	conjunction	255 Jun 01 j 02:56	8°II52'51	-1°-17'-27
retrograde	247 Aug 28 j 01:03	23°829'44		minimum elong	255 Jun 01 j 02:56	8°II52'51	1°17'28
opposition	247 Nov 14 j 14:59	22°804'52	-1°-44'-14	max. Earth dist.	255 Jun 01 j 06:45	8°II53'12	30.88422 AU
min. Earth dist.	247 Nov 14 j 06:10	22°805'30	28.84123 AU	retrograde	255 Sep 15 j 02:12	11°II25'14	
direct	248 Jan 31 j 10:51	20°840'32		opposition	255 Dec 02 j 03:44	10°II00'55	-1°-21'-6
conjunction	248 May 14 j 23:12	23°811'08	-1°-36'-24	min. Earth dist.	255 Dec 02 j 00:17	10°II01'10	28.88974 AU
minimum elong	248 May 14 j 23:12	23°811'08	1°36'24	direct	256 Feb 18 j 08:54	8°II36'17	
max. Earth dist.	248 May 15 j 08:02	23°811'57	30.84163 AU	conjunction	256 Jun 02 j 17:27	11°II07'31	-1°-14'-14
retrograde	248 Aug 29 j 14:29	25°844'30		minimum elong	256 Jun 02 j 17:28	11°II07'31	1°14'14
opposition	248 Nov 16 j 01:46	24°819'40	-1°-41'-51	max. Earth dist.	256 Jun 02 j 21:17	11°II07'52	30.89414 AU
min. Earth dist.	248 Nov 15 j 17:24	24°820'16	28.84378 AU	retrograde	256 Sep 16 j 14:45	13°II39'46	
direct	249 Feb 01 j 22:11	22°855'15		opposition	256 Dec 03 j 14:20	12°II15'34	-1°-17'-36
conjunction	249 May 17 j 13:32	25°825'53	-1°-34'-6	min. Earth dist.	256 Dec 03 j 11:54	12°II15'44	28.89940 AU
				direct	257 Feb 19 j 22:00	10°II50'56	

conjunction	257 Jun 05 j 07:40	13°II22'15	-1°-10'-54	conjunction	265 Jun 24 j 00:40	1°☾15'09	0°-41'-1
minimum elong	257 Jun 05 j 07:41	13°II22'15	1°10'55	minimum elong	265 Jun 24 j 00:41	1°☾15'09	0°41'02
max. Earth dist.	257 Jun 05 j 09:12	13°II22'23	30.90357 AU	max. Earth dist.	265 Jun 23 j 19:36	1°☾14'41	30.96462 AU
retrograde	257 Sep 19 j 04:43	15°II54'21		retrograde	265 Oct 06 j 21:37	3°☾45'44	
opposition	257 Dec 06 j 00:54	14°II30'14	-1°-13'-59	opposition	265 Dec 23 j 11:59	2°☾22'03	0°-41'-41
min. Earth dist.	257 Dec 05 j 23:04	14°II30'21	28.90846 AU	min. Earth dist.	265 Dec 23 j 17:03	2°☾21'41	28.96990 AU
direct	258 Feb 22 j 09:56	13°II05'35		direct	266 Mar 12 j 11:06	0°☾56'58	
conjunction	258 Jun 07 j 22:09	15°II36'57	-1°-7'-28	conjunction	266 Jun 26 j 14:21	3°☾28'34	0°-36'-57
minimum elong	258 Jun 07 j 22:09	15°II36'57	1°07'29	minimum elong	266 Jun 26 j 14:21	3°☾28'34	0°36'59
max. Earth dist.	258 Jun 07 j 23:23	15°II37'04	30.91215 AU	max. Earth dist.	266 Jun 26 j 07:26	3°☾27'56	30.97521 AU
retrograde	258 Sep 21 j 14:57	18°II08'53		retrograde	266 Oct 09 j 10:48	5°☾59'00	
opposition	258 Dec 08 j 11:27	16°II44'51	-1°-10'-15	opposition	266 Dec 25 j 22:06	4°☾35'24	0°-37'-19
min. Earth dist.	258 Dec 08 j 11:25	16°II44'51	28.91652 AU	min. Earth dist.	266 Dec 26 j 03:22	4°☾35'02	28.98103 AU
direct	259 Feb 24 j 21:41	15°II20'10		direct	267 Mar 14 j 23:10	3°☾10'19	
conjunction	259 Jun 10 j 12:29	17°II51'34	-1°-3'-56	conjunction	267 Jun 29 j 04:14	5°☾42'00	0°-32'-50
minimum elong	259 Jun 10 j 12:29	17°II51'34	1°03'57	minimum elong	267 Jun 29 j 04:15	5°☾42'00	0°32'51
max. Earth dist.	259 Jun 10 j 11:46	17°II51'30	30.91990 AU	max. Earth dist.	267 Jun 28 j 21:33	5°☾41'23	30.98672 AU
retrograde	259 Sep 24 j 02:54	20°II23'19		retrograde	267 Oct 11 j 21:07	8°☾12'17	
opposition	259 Dec 10 j 21:54	18°II59'20	-1°-6'-26	opposition	267 Dec 28 j 08:29	6°☾48'49	0°-32'-53
min. Earth dist.	259 Dec 10 j 22:03	18°II59'19	28.92377 AU	min. Earth dist.	267 Dec 28 j 15:16	6°☾48'20	28.99272 AU
direct	260 Feb 27 j 10:09	17°II34'35		direct	268 Mar 16 j 11:05	5°☾23'45	
conjunction	260 Jun 12 j 02:49	20°II06'02	-1°00'-19	conjunction	268 Jun 30 j 17:55	7°☾55'30	0°-28'-40
minimum elong	260 Jun 12 j 02:49	20°II06'02	1°00'19	minimum elong	268 Jun 30 j 17:55	7°☾55'30	0°28'41
max. Earth dist.	260 Jun 12 j 01:20	20°II05'53	30.92676 AU	max. Earth dist.	268 Jun 30 j 09:34	7°☾54'44	30.99856 AU
retrograde	260 Sep 25 j 13:22	22°II37'34		retrograde	268 Oct 13 j 09:26	10°☾25'39	
opposition	260 Dec 12 j 08:23	21°II13'38	-1°-2'-31	opposition	268 Dec 29 j 18:42	9°☾02'19	0°-28'-24
min. Earth dist.	260 Dec 12 j 10:28	21°II13'29	28.93040 AU	min. Earth dist.	268 Dec 30 j 01:30	9°☾01'50	29.00444 AU
direct	261 Feb 28 j 20:42	19°II48'49		direct	269 Mar 18 j 23:06	7°☾37'16	
conjunction	261 Jun 14 j 17:00	22°II20'16	0°-56'-36	conjunction	269 Jul 03 j 07:44	10°☾09'05	0°-24'-28
minimum elong	261 Jun 14 j 17:00	22°II20'16	0°56'37	minimum elong	269 Jul 03 j 07:44	10°☾09'05	0°24'28
max. Earth dist.	261 Jun 14 j 14:26	22°II20'02	30.93339 AU	max. Earth dist.	269 Jul 02 j 22:51	10°☾08'16	31.00997 AU
retrograde	261 Sep 28 j 00:37	24°II51'37		retrograde	269 Oct 15 j 20:13	12°☾39'06	
opposition	261 Dec 14 j 18:41	23°II27'43	0°-58'-30	opposition	270 Jan 01 j 05:09	11°☾15'52	0°-23'-53
min. Earth dist.	261 Dec 14 j 20:38	23°II27'35	28.93693 AU	min. Earth dist.	270 Jan 01 j 13:53	11°☾15'15	29.01555 AU
direct	262 Mar 03 j 09:09	22°II02'49		direct	270 Mar 21 j 09:16	9°☾50'49	
conjunction	262 Jun 17 j 06:56	24°II34'17	0°-52'-49	conjunction	270 Jul 05 j 21:23	12°☾22'42	0°-20'-13
minimum elong	262 Jun 17 j 06:56	24°II34'17	0°52'49	minimum elong	270 Jul 05 j 21:23	12°☾22'42	0°20'14
max. Earth dist.	262 Jun 17 j 03:07	24°II33'56	30.94002 AU	max. Earth dist.	270 Jul 05 j 11:13	12°☾21'46	31.02064 AU
retrograde	262 Sep 30 j 10:58	27°II05'26		retrograde	270 Oct 18 j 07:15	14°☾52'34	
opposition	262 Dec 17 j 05:07	25°II41'34	0°-54'-25	opposition	271 Jan 03 j 15:30	13°☾29'26	0°-19'-20
min. Earth dist.	262 Dec 17 j 08:39	25°II41'19	28.94380 AU	min. Earth dist.	271 Jan 04 j 00:16	13°☾28'49	29.02555 AU
direct	263 Mar 05 j 20:49	24°II16'35		direct	271 Mar 23 j 21:35	12°☾04'22	
conjunction	263 Jun 19 j 21:01	26°II48'05	0°-48'-57	conjunction	271 Jul 08 j 11:08	14°☾36'17	0°-15'-57
minimum elong	263 Jun 19 j 21:02	26°II48'05	0°48'58	minimum elong	271 Jul 08 j 11:08	14°☾36'17	0°15'58
max. Earth dist.	263 Jun 19 j 17:06	26°II47'43	30.94725 AU	max. Earth dist.	271 Jul 07 j 23:27	14°☾35'12	31.03001 AU
retrograde	263 Oct 02 j 22:08	29°II19'01		retrograde	271 Oct 20 j 17:12	17°☾06'00	
opposition	263 Dec 19 j 15:17	27°II55'12	0°-50'-15	opposition	272 Jan 06 j 01:54	15°☾42'55	0°-14'-46
min. Earth dist.	263 Dec 19 j 18:59	27°II54'56	28.95132 AU	min. Earth dist.	272 Jan 06 j 12:29	15°☾42'11	29.03443 AU
direct	264 Mar 07 j 10:29	26°II30'10		direct	272 Mar 25 j 08:51	14°☾17'50	
conjunction	264 Jun 21 j 10:54	29°II01'41	0°-45'-1	conjunction	272 Jul 10 j 00:49	16°☾49'46	0°-11'-41
minimum elong	264 Jun 21 j 10:54	29°II01'41	0°45'02	minimum elong	272 Jul 10 j 00:49	16°☾49'46	0°11'42
max. Earth dist.	264 Jun 21 j 05:20	29°II01'10	30.95531 AU	behind sun begin	272 Jul 09 j 20:14	16°☾49'22	
	264 Jul 18 j 06:05	0°☾		behind sun end	272 Jul 10 j 05:24	16°☾50'10	
retrograde	264 Oct 04 j 10:09	1°☾32'26		max. Earth dist.	272 Jul 09 j 12:40	16°☾48'39	31.03838 AU
opposition	264 Dec 21 j 01:39	0°☾08'40	0°-46'00	retrograde	272 Oct 22 j 03:47	19°☾19'19	
min. Earth dist.	264 Dec 21 j 06:09	0°☾08'21	28.96004 AU	opposition	273 Jan 07 j 12:17	17°☾56'17	0°-10'-10
	264 Dec 26 j 04:20	30°☾II		min. Earth dist.	273 Jan 07 j 23:16	17°☾55'31	29.04222 AU
direct	265 Mar 09 j 21:36	28°II43'36		direct	273 Mar 27 j 22:00	16°☾31'09	
	265 May 19 j 18:58	0°☾		conjunction	273 Jul 12 j 14:04	19°☾03'06	0°-7'-24

minimum elong	273 Jul 12 j 14:04	19° \mathring{S} 03'06	0°07'25	max. Earth dist.	279 Jul 26 j 03:21	2° \mathring{N} 17'32	31.09639 AU
behind sun begin	273 Jul 12 j 08:04	19° \mathring{S} 02'34		retrograde	279 Nov 07 j 08:16	4° \mathring{N} 47'29	
behind sun end	273 Jul 12 j 20:05	19° \mathring{S} 03'38		opposition	280 Jan 23 j 12:01	3° \mathring{N} 24'48	0°21'49
max. Earth dist.	273 Jul 12 j 00:09	19° \mathring{S} 01'49	31.04581 AU	min. Earth dist.	280 Jan 24 j 02:30	3° \mathring{N} 23'47	29.10220 AU
retrograde	273 Oct 24 j 15:08	21° \mathring{S} 32'29		direct	280 Apr 12 j 12:34	1° \mathring{S} 59'28	
opposition	274 Jan 09 j 22:37	20° \mathring{S} 09'29	0°-5'-35				
min. Earth dist.	274 Jan 10 j 10:38	20° \mathring{S} 08'39	29.04947 AU	conjunction	280 Jul 28 j 08:54	4° \mathring{N} 31'25	0°22'35
direct	274 Mar 30 j 08:51	18° \mathring{S} 44'18		minimum elong	280 Jul 28 j 08:54	4° \mathring{N} 31'25	0°22'35
				max. Earth dist.	280 Jul 27 j 15:22	4° \mathring{N} 29'47	31.10785 AU
conjunction	274 Jul 15 j 03:31	21° \mathring{S} 16'14	0°-3'-6	retrograde	280 Nov 08 j 17:55	6° \mathring{S} 59'41	
minimum elong	274 Jul 15 j 03:29	21° \mathring{S} 16'14	0°03'08	opposition	281 Jan 24 j 22:28	5° \mathring{N} 37'06	0°26'19
behind sun begin	274 Jul 14 j 20:56	21° \mathring{S} 15'39		min. Earth dist.	281 Jan 25 j 14:15	5° \mathring{N} 36'00	29.11390 AU
behind sun end	274 Jul 15 j 10:03	21° \mathring{S} 16'49		direct	281 Apr 14 j 22:45	4° \mathring{N} 11'47	
max. Earth dist.	274 Jul 14 j 13:48	21° \mathring{S} 14'59	31.05284 AU				
retrograde	274 Oct 27 j 01:54	23° \mathring{S} 45'26		conjunction	281 Jul 30 j 21:26	6° \mathring{N} 43'45	0°26'46
opposition	275 Jan 12 j 08:47	22° \mathring{S} 22'28	0°00'-59	minimum elong	281 Jul 30 j 21:26	6° \mathring{N} 43'45	0°26'46
min. Earth dist.	275 Jan 12 j 21:42	22° \mathring{S} 21'34	29.05637 AU	max. Earth dist.	281 Jul 30 j 03:54	6° \mathring{N} 42'08	31.11947 AU
direct	275 Apr 01 j 23:02	20° \mathring{S} 57'14		retrograde	281 Nov 11 j 03:56	9° \mathring{N} 11'55	
asc. node	275 Apr 02 j 00:01	20° \mathring{S} 57'14		opposition	282 Jan 27 j 08:52	7° \mathring{N} 49'25	0°30'46
				min. Earth dist.	282 Jan 28 j 00:53	7° \mathring{N} 48'17	29.12522 AU
conjunction	275 Jul 17 j 16:38	23° \mathring{S} 29'09	0°01'18	direct	282 Apr 17 j 10:42	6° \mathring{N} 24'07	
minimum elong	275 Jul 17 j 16:38	23° \mathring{S} 29'09	0°01'18				
behind sun begin	275 Jul 17 j 10:03	23° \mathring{S} 28'35		conjunction	282 Aug 02 j 10:03	8° \mathring{S} 56'06	0°30'54
behind sun end	275 Jul 17 j 23:13	23° \mathring{S} 29'44		minimum elong	282 Aug 02 j 10:02	8° \mathring{S} 56'06	0°30'54
max. Earth dist.	275 Jul 17 j 01:04	23° \mathring{S} 27'43	31.05985 AU	max. Earth dist.	282 Aug 01 j 14:55	8° \mathring{S} 54'19	31.13039 AU
retrograde	275 Oct 29 j 14:13	25° \mathring{S} 58'10		retrograde	282 Nov 13 j 14:57	11° \mathring{N} 24'09	
opposition	276 Jan 14 j 19:01	24° \mathring{S} 35'14	0°03'36	opposition	283 Jan 29 j 19:14	10° \mathring{N} 01'43	0°35'10
min. Earth dist.	276 Jan 15 j 08:00	24° \mathring{S} 34'19	29.06363 AU	min. Earth dist.	283 Jan 30 j 12:10	10° \mathring{N} 00'32	29.13582 AU
direct	276 Apr 03 j 12:01	23° \mathring{S} 09'56		direct	283 Apr 19 j 21:09	8° \mathring{N} 36'25	
conjunction	276 Jul 19 j 05:43	25° \mathring{S} 41'52	0°05'37	conjunction	283 Aug 04 j 22:45	11° \mathring{N} 08'24	0°35'00
minimum elong	276 Jul 19 j 05:42	25° \mathring{S} 41'52	0°05'37	minimum elong	283 Aug 04 j 22:45	11° \mathring{N} 08'24	0°35'00
behind sun begin	276 Jul 18 j 23:23	25° \mathring{S} 41'18		max. Earth dist.	283 Aug 04 j 03:50	11° \mathring{N} 06'39	31.14034 AU
behind sun end	276 Jul 19 j 12:01	25° \mathring{S} 42'25		retrograde	283 Nov 16 j 00:57	13° \mathring{N} 36'20	
max. Earth dist.	276 Jul 18 j 14:38	25° \mathring{S} 40'29	31.06731 AU	opposition	284 Feb 01 j 05:48	12° \mathring{N} 13'57	0°39'31
retrograde	276 Oct 30 j 23:43	28° \mathring{S} 10'42		min. Earth dist.	284 Feb 01 j 23:40	12° \mathring{N} 12'43	29.14516 AU
opposition	277 Jan 16 j 05:21	26° \mathring{S} 47'48	0°08'11	direct	284 Apr 21 j 10:41	10° \mathring{N} 48'40	
min. Earth dist.	277 Jan 16 j 19:33	26° \mathring{S} 46'48	29.07153 AU				
direct	277 Apr 06 j 00:28	25° \mathring{S} 22'28		conjunction	284 Aug 06 j 11:04	13° \mathring{N} 20'38	0°39'02
				minimum elong	284 Aug 06 j 11:04	13° \mathring{N} 20'38	0°39'02
conjunction	277 Jul 21 j 18:32	27° \mathring{S} 54'23	0°09'52	max. Earth dist.	284 Aug 05 j 14:16	13° \mathring{N} 18'42	31.14909 AU
minimum elong	277 Jul 21 j 18:32	27° \mathring{S} 54'23	0°09'52		284 Sep 24 j 02:39	15° \mathring{N}	
behind sun begin	277 Jul 21 j 13:13	27° \mathring{S} 53'54		retrograde	284 Nov 17 j 12:51	15° \mathring{N} 48'26	
behind sun end	277 Jul 21 j 23:50	27° \mathring{S} 54'51			285 Jan 12 j 19:19	15° \mathring{R} \mathring{S}	
max. Earth dist.	277 Jul 21 j 02:12	27° \mathring{S} 52'52	31.07582 AU	opposition	285 Feb 02 j 16:19	14° \mathring{N} 26'05	0°43'48
	277 Sep 26 j 10:53	0° \mathring{N}		min. Earth dist.	285 Feb 03 j 10:15	14° \mathring{N} 24'50	29.15343 AU
retrograde	277 Nov 02 j 11:46	0° \mathring{N} 23'03		direct	285 Apr 23 j 23:03	13° \mathring{N} 00'47	
	277 Dec 09 j 23:48	30° \mathring{R} \mathring{S}			285 Jul 25 j 04:25	15° \mathring{N}	
opposition	278 Jan 18 j 15:30	29° \mathring{S} 00'12	0°12'45				
min. Earth dist.	278 Jan 19 j 05:07	28° \mathring{S} 59'15	29.08067 AU	conjunction	285 Aug 08 j 23:32	15° \mathring{N} 32'44	0°43'01
direct	278 Apr 08 j 13:09	27° \mathring{S} 34'51		minimum elong	285 Aug 08 j 23:32	15° \mathring{N} 32'44	0°43'01
	278 Jul 21 j 06:26	0° \mathring{N}		max. Earth dist.	285 Aug 08 j 03:03	15° \mathring{N} 30'50	31.15676 AU
conjunction	278 Jul 24 j 07:23	0° \mathring{N} 06'46	0°14'08	retrograde	285 Nov 19 j 22:27	18° \mathring{N} 00'25	
minimum elong	278 Jul 24 j 07:23	0° \mathring{N} 06'46	0°14'07	opposition	286 Feb 05 j 02:50	16° \mathring{N} 38'05	0°48'01
behind sun begin	278 Jul 24 j 04:19	0° \mathring{N} 06'30		min. Earth dist.	286 Feb 05 j 22:16	16° \mathring{N} 36'44	29.16068 AU
behind sun end	278 Jul 24 j 10:27	0° \mathring{N} 07'02		direct	286 Apr 26 j 11:26	15° \mathring{N} 12'46	
max. Earth dist.	278 Jul 23 j 15:15	0° \mathring{N} 05'17	31.08551 AU				
retrograde	278 Nov 04 j 22:12	2° \mathring{N} 35'17		conjunction	286 Aug 11 j 11:42	17° \mathring{N} 44'40	0°46'55
opposition	279 Jan 21 j 01:52	1° \mathring{N} 12'31	0°17'18	minimum elong	286 Aug 11 j 11:42	17° \mathring{N} 44'40	0°46'55
min. Earth dist.	279 Jan 21 j 16:49	1° \mathring{N} 11'28	29.09099 AU	max. Earth dist.	286 Aug 10 j 13:46	17° \mathring{N} 42'38	31.16366 AU
	279 Mar 13 j 15:11	30° \mathring{R} \mathring{S}		retrograde	286 Nov 22 j 10:20	20° \mathring{N} 12'13	
direct	279 Apr 11 j 00:08	29° \mathring{S} 47'10		opposition	287 Feb 07 j 13:16	18° \mathring{N} 49'55	0°52'09
	279 May 09 j 01:57	0° \mathring{N}		min. Earth dist.	287 Feb 08 j 08:18	18° \mathring{N} 48'36	29.16727 AU
				direct	287 Apr 29 j 00:52	17° \mathring{N} 24'34	
conjunction	279 Jul 26 j 20:09	2° \mathring{N} 19'05	0°18'22	conjunction	287 Aug 13 j 23:52	19° \mathring{N} 56'26	0°50'46
minimum elong	279 Jul 26 j 20:09	2° \mathring{N} 19'05	0°18'22	minimum elong	287 Aug 13 j 23:52	19° \mathring{N} 56'26	0°50'47

max. Earth dist.	287 Aug 13 j 02:06	19°Ω54'25	31.16996 AU	max. Earth dist.	295 Aug 30 j 21:02	7°♊25'53	31.24023 AU
retrograde	287 Nov 24 j 20:23	22°Ω23'51		retrograde	295 Dec 12 j 06:28	9°♊54'58	
opposition	288 Feb 09 j 23:51	21°Ω01'34	0°56'13	opposition	296 Feb 27 j 13:18	8°♊33'06	1°25'14
min. Earth dist.	288 Feb 10 j 20:15	21°Ω00'09	29.17363 AU	min. Earth dist.	296 Feb 28 j 10:17	8°♊31'40	29.24513 AU
direct	288 Apr 30 j 12:41	19°Ω36'12		direct	296 May 18 j 10:28	7°♊08'01	
				max. Earth dist.	296 Sep 01 j 08:39	9°♊37'30	31.24800 AU
conjunction	288 Aug 15 j 11:46	22°Ω08'01	0°54'32				
minimum elong	288 Aug 15 j 11:46	22°Ω08'01	0°54'31	conjunction	296 Sep 02 j 08:01	9°♊39'41	1°21'18
max. Earth dist.	288 Aug 14 j 13:34	22°Ω05'58	31.17644 AU	minimum elong	296 Sep 02 j 08:01	9°♊39'41	1°21'18
retrograde	288 Nov 26 j 06:00	24°Ω35'19		retrograde	296 Dec 13 j 17:05	12°♊06'31	
opposition	289 Feb 11 j 10:21	23°Ω13'04	1°00'11	opposition	297 Mar 01 j 00:26	10°♊44'40	1°28'22
min. Earth dist.	289 Feb 12 j 05:59	23°Ω11'42	29.18033 AU	min. Earth dist.	297 Mar 01 j 22:46	10°♊43'08	29.25236 AU
direct	289 May 03 j 01:39	21°Ω47'41		direct	297 May 20 j 22:42	9°♊19'36	
conjunction	289 Aug 17 j 23:25	24°Ω19'27	0°58'12	conjunction	297 Sep 04 j 19:10	11°♊51'12	1°24'10
minimum elong	289 Aug 17 j 23:25	24°Ω19'27	0°58'13	minimum elong	297 Sep 04 j 19:10	11°♊51'12	1°24'10
max. Earth dist.	289 Aug 17 j 00:55	24°Ω17'22	31.18342 AU	max. Earth dist.	297 Sep 03 j 19:19	11°♊48'59	31.25453 AU
retrograde	289 Nov 28 j 15:07	26°Ω46'39		retrograde	297 Dec 16 j 02:52	14°♊17'58	
opposition	290 Feb 13 j 20:58	25°Ω24'25	1°04'05	opposition	298 Mar 03 j 11:25	12°♊56'08	1°31'21
min. Earth dist.	290 Feb 14 j 17:23	25°Ω23'00	29.18793 AU	min. Earth dist.	298 Mar 04 j 09:10	12°♊54'38	29.25814 AU
direct	290 May 05 j 11:58	23°Ω59'03		direct	298 May 23 j 12:04	11°♊31'04	
				max. Earth dist.	298 Sep 06 j 05:53	14°♊00'20	31.25958 AU
conjunction	290 Aug 20 j 11:09	26°Ω30'48	1°01'48				
minimum elong	290 Aug 20 j 11:09	26°Ω30'48	1°01'47	conjunction	298 Sep 07 j 06:22	14°♊02'36	1°26'54
max. Earth dist.	290 Aug 19 j 13:09	26°Ω28'45	31.19152 AU	minimum elong	298 Sep 07 j 06:21	14°♊02'36	1°26'53
retrograde	290 Dec 01 j 00:19	28°Ω57'54		retrograde	298 Dec 18 j 12:32	16°♊29'17	
opposition	291 Feb 16 j 07:26	27°Ω35'44	1°07'52	opposition	299 Mar 05 j 22:25	15°♊07'27	1°34'13
min. Earth dist.	291 Feb 17 j 03:31	27°Ω34'20	29.19653 AU	min. Earth dist.	299 Mar 06 j 21:09	15°♊05'53	29.26273 AU
direct	291 May 07 j 23:27	26°Ω10'22		direct	299 May 25 j 23:18	13°♊42'23	
conjunction	291 Aug 22 j 22:45	28°Ω42'06	1°05'18	conjunction	299 Sep 09 j 17:26	16°♊13'50	1°29'31
minimum elong	291 Aug 22 j 22:45	28°Ω42'06	1°05'18	minimum elong	299 Sep 09 j 17:26	16°♊13'50	1°29'31
max. Earth dist.	291 Aug 21 j 23:55	28°Ω39'59	31.20067 AU	max. Earth dist.	299 Sep 08 j 17:25	16°♊11'35	31.26366 AU
	291 Sep 28 j 14:42	0°♊		retrograde	299 Dec 20 j 21:32	18°♊40'26	
retrograde	291 Dec 03 j 10:55	1°♊09'10		opposition	300 Mar 07 j 09:34	17°♊18'35	1°36'56
	292 Feb 10 j 22:24	30°♊Ω		min. Earth dist.	300 Mar 08 j 08:05	17°♊17'02	29.26637 AU
opposition	292 Feb 18 j 18:05	29°Ω47'03	1°11'34	direct	300 May 27 j 12:06	15°♊53'29	
min. Earth dist.	292 Feb 19 j 14:17	29°Ω45'39	29.20630 AU	max. Earth dist.	300 Sep 10 j 03:21	18°♊22'31	31.26704 AU
direct	292 May 09 j 09:27	28°Ω21'45					
	292 Jul 30 j 22:37	0°♊		conjunction	300 Sep 11 j 04:07	18°♊24'50	1°31'59
				minimum elong	300 Sep 11 j 04:07	18°♊24'50	1°31'59
conjunction	292 Aug 24 j 10:15	0°♊53'28	1°08'43	retrograde	300 Dec 22 j 07:19	20°♊51'23	
minimum elong	292 Aug 24 j 10:15	0°♊53'28	1°08'42	opposition	301 Mar 09 j 20:41	19°♊29'30	1°39'31
max. Earth dist.	292 Aug 23 j 12:29	0°♊51'27	31.21076 AU	min. Earth dist.	301 Mar 10 j 19:10	19°♊27'57	29.26980 AU
retrograde	292 Dec 04 j 20:22	3°♊20'29		direct	301 May 29 j 22:54	18°♊04'23	
opposition	293 Feb 20 j 04:51	1°♊58'27	1°15'09				
min. Earth dist.	293 Feb 21 j 01:27	1°♊57'01	29.21658 AU	conjunction	301 Sep 13 j 14:54	20°♊35'38	1°34'20
direct	293 May 11 j 21:57	0°♊33'13		minimum elong	301 Sep 13 j 14:54	20°♊35'38	1°34'21
				max. Earth dist.	301 Sep 12 j 15:25	20°♊33'27	31.27043 AU
conjunction	293 Aug 26 j 21:39	3°♊04'56	1°12'01	retrograde	301 Dec 24 j 15:31	23°♊02'07	
minimum elong	293 Aug 26 j 21:39	3°♊04'56	1°12'02	opposition	302 Mar 12 j 07:44	21°♊40'13	1°41'57
max. Earth dist.	293 Aug 25 j 22:37	3°♊02'47	31.22113 AU	min. Earth dist.	302 Mar 13 j 06:24	21°♊38'39	29.27337 AU
retrograde	293 Dec 07 j 08:10	5°♊31'55		direct	302 Jun 01 j 11:03	20°♊15'06	
opposition	294 Feb 22 j 15:26	4°♊09'56	1°18'38	max. Earth dist.	302 Sep 15 j 01:09	22°♊44'00	31.27432 AU
min. Earth dist.	294 Feb 23 j 11:43	4°♊08'32	29.22697 AU				
direct	294 May 14 j 08:55	2°♊44'45		conjunction	302 Sep 16 j 01:28	22°♊46'16	1°36'33
max. Earth dist.	294 Aug 28 j 10:52	5°♊14'24	31.23113 AU	minimum elong	302 Sep 16 j 01:28	22°♊46'16	1°36'32
				retrograde	302 Dec 27 j 02:39	25°♊12'43	
conjunction	294 Aug 29 j 09:14	5°♊16'29	1°15'14	opposition	303 Mar 14 j 18:53	23°♊50'48	1°44'14
minimum elong	294 Aug 29 j 09:13	5°♊16'29	1°15'13	min. Earth dist.	303 Mar 15 j 16:30	23°♊49'19	29.27774 AU
retrograde	294 Dec 09 j 18:05	7°♊43'25		direct	303 Jun 03 j 21:38	22°♊25'43	
opposition	295 Feb 25 j 02:25	6°♊21'31	1°22'00				
min. Earth dist.	295 Feb 25 j 23:58	6°♊20'02	29.23660 AU	conjunction	303 Sep 18 j 12:03	24°♊56'49	1°38'37
direct	295 May 16 j 20:39	4°♊56'23		minimum elong	303 Sep 18 j 12:03	24°♊56'49	1°38'38
				max. Earth dist.	303 Sep 17 j 13:05	24°♊54'41	31.27903 AU
conjunction	295 Aug 31 j 20:35	7°♊28'05	1°18'19	retrograde	303 Dec 29 j 12:03	27°♊23'16	
minimum elong	295 Aug 31 j 20:34	7°♊28'05	1°18'20	opposition	304 Mar 16 j 06:13	26°♊01'22	1°46'22

min. Earth dist.	304 Mar 17 j 04:24	25° $\overline{\text{M}}$ 59'51	29.28291 AU	min. Earth dist.	312 Apr 03 j 22:56	13° $\underline{\text{A}}$ 26'59	29.31033 AU
direct	304 Jun 05 j 09:12	24° $\overline{\text{M}}$ 36'20		direct	312 Jun 23 j 07:36	12° $\underline{\text{A}}$ 03'45	
				max. Earth dist.	312 Oct 06 j 11:05	14° $\underline{\text{A}}$ 32'20	31.30831 AU
conjunction	304 Sep 19 j 22:27	27° $\overline{\text{M}}$ 07'23	1°40'33				
minimum elong	304 Sep 19 j 22:26	27° $\overline{\text{M}}$ 07'23	1°40'32	conjunction	312 Oct 07 j 08:23	14° $\underline{\text{A}}$ 34'20	1°50'34
max. Earth dist.	304 Sep 18 j 23:07	27° $\overline{\text{M}}$ 05'12	31.28467 AU	minimum elong	312 Oct 07 j 08:23	14° $\underline{\text{A}}$ 34'20	1°50'34
retrograde	304 Dec 31 j 00:05	29° $\overline{\text{M}}$ 33'50		retrograde	313 Jan 17 j 07:54	17° $\underline{\text{A}}$ 00'58	
opposition	305 Mar 18 j 17:24	28° $\overline{\text{M}}$ 11'58	1°48'21	opposition	313 Apr 05 j 14:17	15° $\underline{\text{A}}$ 39'06	1°58'25
min. Earth dist.	305 Mar 19 j 14:19	28° $\overline{\text{M}}$ 10'32	29.28884 AU	min. Earth dist.	313 Apr 06 j 11:21	15° $\underline{\text{A}}$ 37'40	29.30890 AU
direct	305 Jun 07 j 22:02	26° $\overline{\text{M}}$ 47'00		direct	313 Jun 25 j 19:21	14° $\underline{\text{A}}$ 14'29	
max. Earth dist.	305 Sep 21 j 10:18	29° $\overline{\text{M}}$ 15'55	31.29068 AU				
				conjunction	313 Oct 09 j 18:05	16° $\underline{\text{A}}$ 44'57	1°51'08
conjunction	305 Sep 22 j 08:49	29° $\overline{\text{M}}$ 18'01	1°42'20	minimum elong	313 Oct 09 j 18:04	16° $\underline{\text{A}}$ 44'57	1°51'08
minimum elong	305 Sep 22 j 08:49	29° $\overline{\text{M}}$ 18'01	1°42'20	max. Earth dist.	313 Oct 08 j 20:37	16° $\underline{\text{A}}$ 42'56	31.30681 AU
	305 Oct 11 j 07:46	0° $\underline{\text{A}}$		retrograde	314 Jan 19 j 19:30	19° $\underline{\text{A}}$ 11'35	
retrograde	306 Jan 02 j 10:53	1° $\underline{\text{A}}$ 44'30		opposition	314 Apr 08 j 01:56	17° $\underline{\text{A}}$ 49'40	1°58'56
opposition	306 Mar 21 j 04:49	0° $\underline{\text{A}}$ 22'40	1°50'11	min. Earth dist.	314 Apr 08 j 21:31	17° $\underline{\text{A}}$ 48'20	29.30737 AU
min. Earth dist.	306 Mar 22 j 02:35	0° $\underline{\text{A}}$ 21'11	29.29491 AU	direct	314 Jun 28 j 08:10	16° $\underline{\text{A}}$ 25'02	
	306 Apr 04 j 03:59	30° $\overline{\text{R}}$ $\overline{\text{M}}$		max. Earth dist.	314 Oct 11 j 07:23	18° $\underline{\text{A}}$ 53'29	31.30537 AU
direct	306 Jun 10 j 09:33	28° $\overline{\text{M}}$ 57'47					
	306 Aug 13 j 10:10	0° $\underline{\text{A}}$		conjunction	314 Oct 12 j 03:48	18° $\underline{\text{A}}$ 55'24	1°51'32
				minimum elong	314 Oct 12 j 03:48	18° $\underline{\text{A}}$ 55'24	1°51'31
conjunction	306 Sep 24 j 19:11	1° $\underline{\text{A}}$ 28'47	1°43'58	retrograde	315 Jan 22 j 05:57	21° $\underline{\text{A}}$ 22'04	
minimum elong	306 Sep 24 j 19:10	1° $\underline{\text{A}}$ 28'47	1°43'57	opposition	315 Apr 10 j 13:48	20° $\underline{\text{A}}$ 00'05	1°59'17
max. Earth dist.	306 Sep 23 j 20:46	1° $\underline{\text{A}}$ 26'41	31.29660 AU	min. Earth dist.	315 Apr 11 j 09:42	19° $\underline{\text{A}}$ 58'43	29.30634 AU
retrograde	307 Jan 04 j 21:00	3° $\underline{\text{A}}$ 55'17		direct	315 Jun 30 j 19:13	18° $\underline{\text{A}}$ 35'28	
opposition	307 Mar 23 j 16:09	2° $\underline{\text{A}}$ 33'30	1°51'51				
min. Earth dist.	307 Mar 24 j 12:56	2° $\underline{\text{A}}$ 32'05	29.30048 AU	conjunction	315 Oct 14 j 13:25	21° $\underline{\text{A}}$ 05'43	1°51'46
direct	307 Jun 12 j 22:30	1° $\underline{\text{A}}$ 08'42		minimum elong	315 Oct 14 j 13:25	21° $\underline{\text{A}}$ 05'43	1°51'46
max. Earth dist.	307 Sep 26 j 06:54	3° $\underline{\text{A}}$ 37'33	31.30171 AU	max. Earth dist.	315 Oct 13 j 17:49	21° $\underline{\text{A}}$ 03'53	31.30483 AU
				retrograde	316 Jan 24 j 16:03	23° $\underline{\text{A}}$ 32'25	
conjunction	307 Sep 27 j 05:32	3° $\underline{\text{A}}$ 39'40	1°45'27	opposition	316 Apr 12 j 01:37	22° $\underline{\text{A}}$ 10'24	1°59'27
minimum elong	307 Sep 27 j 05:32	3° $\underline{\text{A}}$ 39'40	1°45'27	min. Earth dist.	316 Apr 12 j 19:48	22° $\underline{\text{A}}$ 09'10	29.30620 AU
retrograde	308 Jan 07 j 07:37	6° $\underline{\text{A}}$ 06'12		direct	316 Jul 02 j 08:22	20° $\underline{\text{A}}$ 45'50	
opposition	308 Mar 25 j 03:48	4° $\underline{\text{A}}$ 44'27	1°53'21				
min. Earth dist.	308 Mar 26 j 01:11	4° $\underline{\text{A}}$ 43'00	29.30522 AU	conjunction	316 Oct 15 j 22:51	23° $\underline{\text{A}}$ 16'01	1°51'51
direct	308 Jun 14 j 09:43	3° $\underline{\text{A}}$ 19'43		minimum elong	316 Oct 15 j 22:51	23° $\underline{\text{A}}$ 16'01	1°51'50
				max. Earth dist.	316 Oct 15 j 03:36	23° $\underline{\text{A}}$ 14'12	31.30518 AU
conjunction	308 Sep 28 j 15:46	5° $\underline{\text{A}}$ 50'38	1°46'47	retrograde	317 Jan 26 j 03:18	25° $\underline{\text{A}}$ 42'46	
minimum elong	308 Sep 28 j 15:46	5° $\underline{\text{A}}$ 50'38	1°46'46	opposition	317 Apr 14 j 13:34	24° $\underline{\text{A}}$ 20'44	1°59'27
max. Earth dist.	308 Sep 27 j 17:54	5° $\underline{\text{A}}$ 48'35	31.30581 AU	min. Earth dist.	317 Apr 15 j 07:36	24° $\underline{\text{A}}$ 19'30	29.30706 AU
retrograde	309 Jan 08 j 17:06	8° $\underline{\text{A}}$ 17'12		direct	317 Jul 04 j 20:03	22° $\underline{\text{A}}$ 56'13	
opposition	309 Mar 27 j 15:28	6° $\underline{\text{A}}$ 55'28	1°54'42				
min. Earth dist.	309 Mar 28 j 12:31	6° $\underline{\text{A}}$ 54'02	29.30858 AU	conjunction	317 Oct 18 j 08:26	25° $\underline{\text{A}}$ 26'19	1°51'46
direct	309 Jun 16 j 22:34	5° $\underline{\text{A}}$ 30'47		minimum elong	317 Oct 18 j 08:26	25° $\underline{\text{A}}$ 26'19	1°51'47
max. Earth dist.	309 Sep 30 j 03:16	7° $\underline{\text{A}}$ 59'30	31.30845 AU	max. Earth dist.	317 Oct 17 j 14:40	25° $\underline{\text{A}}$ 24'39	31.30640 AU
				retrograde	318 Jan 28 j 12:52	27° $\underline{\text{A}}$ 53'08	
conjunction	309 Oct 01 j 02:00	8° $\underline{\text{A}}$ 01'38	1°47'58	opposition	318 Apr 17 j 01:21	26° $\underline{\text{A}}$ 31'06	1°59'17
minimum elong	309 Oct 01 j 02:00	8° $\underline{\text{A}}$ 01'38	1°47'58	min. Earth dist.	318 Apr 17 j 18:33	26° $\underline{\text{A}}$ 29'56	29.30835 AU
retrograde	310 Jan 11 j 03:20	10° $\underline{\text{A}}$ 28'14		direct	318 Jul 07 j 09:13	25° $\underline{\text{A}}$ 06'39	
opposition	310 Mar 30 j 02:59	9° $\underline{\text{A}}$ 06'30	1°55'53				
min. Earth dist.	310 Mar 31 j 00:03	9° $\underline{\text{A}}$ 05'04	29.31059 AU	conjunction	318 Oct 20 j 17:55	27° $\underline{\text{A}}$ 36'42	1°51'32
direct	310 Jun 19 j 09:17	7° $\underline{\text{A}}$ 41'51		minimum elong	318 Oct 20 j 17:55	27° $\underline{\text{A}}$ 36'42	1°51'31
				max. Earth dist.	318 Oct 19 j 23:51	27° $\underline{\text{A}}$ 35'00	31.30785 AU
conjunction	310 Oct 03 j 12:22	10° $\underline{\text{A}}$ 12'38	1°48'59		319 Jan 16 j 09:49	0° $\overline{\text{M}}$	
minimum elong	310 Oct 03 j 12:21	10° $\underline{\text{A}}$ 12'38	1°48'59	retrograde	319 Jan 30 j 23:27	0° $\overline{\text{M}}$ 03'36	
max. Earth dist.	310 Oct 02 j 14:43	10° $\underline{\text{A}}$ 10'36	31.30965 AU		319 Feb 14 j 15:22	30° $\overline{\text{R}}$ $\underline{\text{A}}$	
retrograde	311 Jan 13 j 11:36	12° $\underline{\text{A}}$ 39'15		opposition	319 Apr 19 j 13:25	28° $\underline{\text{A}}$ 41'34	1°58'57
opposition	311 Apr 01 j 14:47	11° $\underline{\text{A}}$ 17'29	1°56'53	min. Earth dist.	319 Apr 20 j 05:59	28° $\underline{\text{A}}$ 40'27	29.30984 AU
min. Earth dist.	311 Apr 02 j 12:09	11° $\underline{\text{A}}$ 16'02	29.31101 AU	direct	319 Jul 09 j 19:37	27° $\underline{\text{A}}$ 17'12	
direct	311 Jun 21 j 21:19	9° $\underline{\text{A}}$ 52'52		max. Earth dist.	319 Oct 22 j 11:05	29° $\underline{\text{A}}$ 45'38	31.30913 AU
conjunction	311 Oct 05 j 22:19	12° $\underline{\text{A}}$ 23'33	1°49'51	conjunction	319 Oct 23 j 03:25	29° $\underline{\text{A}}$ 47'11	1°51'08
minimum elong	311 Oct 05 j 22:19	12° $\underline{\text{A}}$ 23'33	1°49'52	minimum elong	319 Oct 23 j 03:25	29° $\underline{\text{A}}$ 47'11	1°51'08
max. Earth dist.	311 Oct 04 j 23:47	12° $\underline{\text{A}}$ 21'26	31.30948 AU		319 Oct 28 j 19:58	0° $\overline{\text{M}}$	
retrograde	312 Jan 15 j 22:42	14° $\underline{\text{A}}$ 50'11		retrograde	320 Feb 02 j 08:00	2° $\overline{\text{M}}$ 14'10	
opposition	312 Apr 03 j 02:30	13° $\underline{\text{A}}$ 28'22	1°57'44	opposition	320 Apr 21 j 01:41	0° $\overline{\text{M}}$ 52'08	1°58'26

min. Earth dist.	320 Apr 21 j 18:09	0° M 51'01	29.31077 AU	minimum elong	327 Nov 09 j 06:18	17° M 11'49	1°42'20
	320 May 25 j 14:43	30° R Ω		max. Earth dist.	327 Nov 08 j 17:44	17° M 10'38	31.28505 AU
direct	320 Jul 11 j 07:47	29° Ω 27'50		retrograde	328 Feb 19 j 23:03	19° M 39'29	
	320 Aug 25 j 08:03	0° M		opposition	328 May 09 j 04:28	18° M 17'04	1°48'23
				min. Earth dist.	328 May 09 j 15:35	18° M 16'19	29.28409 AU
conjunction	320 Oct 24 j 12:52	1° M 57'44	1°50'34	direct	328 Jul 29 j 05:05	16° M 53'03	
minimum elong	320 Oct 24 j 12:52	1° M 57'44	1°50'34				
max. Earth dist.	320 Oct 23 j 19:59	1° M 56'09	31.30976 AU	conjunction	328 Nov 10 j 15:32	19° M 22'15	1°40'33
retrograde	321 Feb 03 j 19:40	4° M 24'49		minimum elong	328 Nov 10 j 15:33	19° M 22'15	1°40'33
opposition	321 Apr 23 j 13:45	3° M 02'46	1°57'45	max. Earth dist.	328 Nov 10 j 05:05	19° M 21'16	31.28128 AU
min. Earth dist.	321 Apr 24 j 05:02	3° M 01'44	29.31096 AU	retrograde	329 Feb 21 j 07:38	21° M 50'01	
direct	321 Jul 13 j 17:58	1° M 38'32		opposition	329 May 11 j 16:51	20° M 27'35	1°46'25
				min. Earth dist.	329 May 12 j 03:23	20° M 26'52	29.28071 AU
conjunction	321 Oct 26 j 22:28	4° M 08'22	1°49'51	direct	329 Jul 31 j 17:28	19° M 03'38	
minimum elong	321 Oct 26 j 22:28	4° M 08'22	1°49'51				
max. Earth dist.	321 Oct 26 j 06:46	4° M 06'54	31.30929 AU	conjunction	329 Nov 13 j 00:36	21° M 32'46	1°38'38
retrograde	322 Feb 06 j 05:13	6° M 35'33		minimum elong	329 Nov 13 j 00:36	21° M 32'46	1°38'39
opposition	322 Apr 26 j 02:07	5° M 13'29	1°56'54	max. Earth dist.	329 Nov 12 j 14:07	21° M 31'47	31.27845 AU
min. Earth dist.	322 Apr 26 j 18:00	5° M 12'24	29.30982 AU	retrograde	330 Feb 23 j 19:40	24° M 00'40	
direct	322 Jul 16 j 05:24	3° M 49'18		opposition	330 May 14 j 05:16	22° M 38'13	1°44'17
				min. Earth dist.	330 May 14 j 14:03	22° M 37'37	29.27817 AU
conjunction	322 Oct 29 j 07:54	6° M 19'03	1°48'58	direct	330 Aug 03 j 03:46	21° M 14'20	
minimum elong	322 Oct 29 j 07:54	6° M 19'03	1°48'58				
max. Earth dist.	322 Oct 28 j 16:04	6° M 17'34	31.30754 AU	conjunction	330 Nov 15 j 09:42	23° M 43'25	1°36'34
retrograde	323 Feb 08 j 16:59	8° M 46'18		minimum elong	330 Nov 15 j 09:42	23° M 43'25	1°36'33
opposition	323 Apr 28 j 14:23	7° M 24'12	1°55'53	max. Earth dist.	330 Nov 15 j 00:53	23° M 42'35	31.27610 AU
min. Earth dist.	323 Apr 29 j 04:50	7° M 23'14	29.30730 AU	retrograde	331 Feb 26 j 05:08	26° M 11'28	
direct	323 Jul 18 j 17:16	6° M 00'04		opposition	331 May 16 j 17:57	24° M 49'00	1°42'00
				min. Earth dist.	331 May 17 j 02:48	24° M 48'24	29.27591 AU
conjunction	323 Oct 31 j 17:26	8° M 29'44	1°47'57	direct	331 Aug 05 j 14:46	23° M 25'13	
minimum elong	323 Oct 31 j 17:26	8° M 29'44	1°47'57				
max. Earth dist.	323 Oct 31 j 02:15	8° M 28'18	31.30434 AU	conjunction	331 Nov 17 j 18:49	25° M 54'14	1°34'22
retrograde	324 Feb 11 j 04:04	10° M 57'05		minimum elong	331 Nov 17 j 18:49	25° M 54'14	1°34'22
opposition	324 Apr 30 j 02:54	9° M 34'55	1°54'42	max. Earth dist.	331 Nov 17 j 10:29	25° M 53'27	31.27401 AU
min. Earth dist.	324 Apr 30 j 17:53	9° M 33'54	29.30351 AU	retrograde	332 Feb 28 j 17:06	28° M 22'26	
direct	324 Jul 20 j 03:46	8° M 10'48		opposition	332 May 18 j 06:34	26° M 59'57	1°39'34
				min. Earth dist.	332 May 18 j 13:37	26° M 59'28	29.27362 AU
conjunction	324 Nov 02 j 02:45	10° M 40'22	1°46'46	direct	332 Aug 07 j 01:23	25° M 36'14	
minimum elong	324 Nov 02 j 02:45	10° M 40'22	1°46'45				
max. Earth dist.	324 Nov 01 j 12:20	10° M 39'01	31.30009 AU	conjunction	332 Nov 19 j 03:58	28° M 05'13	1°32'01
retrograde	325 Feb 12 j 14:40	13° M 07'47		minimum elong	332 Nov 19 j 03:58	28° M 05'13	1°32'00
opposition	325 May 02 j 15:13	11° M 45'34	1°53'22	max. Earth dist.	332 Nov 18 j 20:28	28° M 04'30	31.27146 AU
min. Earth dist.	325 May 03 j 04:44	11° M 44'39	29.29866 AU		333 Jan 15 j 23:30	0° ♂	
direct	325 Jul 22 j 17:07	10° M 21'28		retrograde	333 Mar 02 j 04:41	0° ♂ 33'34	
					333 Apr 18 j 10:28	30° R M	
conjunction	325 Nov 04 j 12:02	12° M 50'56	1°45'26	opposition	333 May 20 j 19:24	29° M 11'03	1°37'00
minimum elong	325 Nov 04 j 12:02	12° M 50'56	1°45'26	min. Earth dist.	333 May 21 j 02:48	29° M 10'34	29.27072 AU
max. Earth dist.	325 Nov 03 j 21:40	12° M 49'35	31.29494 AU	direct	333 Aug 09 j 10:34	27° M 47'25	
	326 Jan 12 j 21:09	15° M			333 Nov 14 j 08:07	0° ♂	
retrograde	326 Feb 15 j 02:24	15° M 18'24					
	326 Mar 21 j 03:35	15° R M		conjunction	333 Nov 21 j 13:15	0° ♂ 16'20	1°29'32
opposition	326 May 05 j 03:30	13° M 56'07	1°51'52	minimum elong	333 Nov 21 j 13:15	0° ♂ 16'20	1°29'32
min. Earth dist.	326 May 05 j 16:57	13° M 55'12	29.29342 AU	max. Earth dist.	333 Nov 21 j 06:43	0° ♂ 15'43	31.26812 AU
direct	326 Jul 25 j 04:55	12° M 32'02		retrograde	334 Mar 04 j 16:16	2° ♂ 44'49	
				opposition	334 May 23 j 08:05	1° ♂ 22'17	1°34'16
conjunction	326 Nov 06 j 21:19	15° M 01'24	1°43'57	min. Earth dist.	334 May 23 j 14:00	1° ♂ 21'53	29.26667 AU
minimum elong	326 Nov 06 j 21:19	15° M 01'24	1°43'56		334 Aug 03 j 02:10	30° R M	
max. Earth dist.	326 Nov 06 j 08:41	15° M 00'13	31.28976 AU	direct	334 Aug 11 j 23:43	29° M 58'42	
	326 Nov 06 j 06:24	15° M			334 Aug 20 j 22:22	0° ♂	
retrograde	327 Feb 17 j 12:17	17° M 28'57					
opposition	327 May 07 j 15:58	16° M 06'36	1°50'12	conjunction	334 Nov 23 j 22:33	2° ♂ 27'34	1°26'55
min. Earth dist.	327 May 08 j 04:14	16° M 05'46	29.28832 AU	minimum elong	334 Nov 23 j 22:34	2° ♂ 27'34	1°26'54
	327 Jun 24 j 00:16	15° R M		max. Earth dist.	334 Nov 23 j 15:52	2° ♂ 26'56	31.26345 AU
direct	327 Jul 27 j 18:27	14° M 42'32		retrograde	335 Mar 07 j 05:39	4° ♂ 56'10	
	327 Aug 29 j 13:20	15° M		opposition	335 May 25 j 21:06	3° ♂ 33'35	1°31'25
				min. Earth dist.	335 May 26 j 03:00	3° ♂ 33'11	29.26135 AU
conjunction	327 Nov 09 j 06:18	17° M 11'49	1°42'20	direct	335 Aug 14 j 10:53	2° ♂ 10'03	

conjunction	335 Nov 26 j 07:54	4°♂38'50	1°24'11	retrograde	344 Mar 26 j 11:59	24°♂37'03	
minimum elong	335 Nov 26 j 07:54	4°♂38'50	1°24'12	opposition	344 Jun 14 j 17:27	23°♂13'50	1°00'22
max. Earth dist.	335 Nov 26 j 02:43	4°♂38'20	31.25741 AU	min. Earth dist.	344 Jun 14 j 15:05	23°♂14'00	29.19018 AU
retrograde	336 Mar 08 j 16:18	7°♂07'33		direct	344 Sep 02 j 18:20	21°♂50'32	
opposition	336 May 27 j 10:05	5°♂44'54	1°28'26				
min. Earth dist.	336 May 27 j 15:07	5°♂44'34	29.25441 AU	conjunction	344 Dec 14 j 19:05	24°♂18'41	0°54'40
direct	336 Aug 16 j 00:10	4°♂21'23		minimum elong	344 Dec 14 j 19:06	24°♂18'41	0°54'39
				max. Earth dist.	344 Dec 14 j 22:18	24°♂19'00	31.18672 AU
conjunction	336 Nov 27 j 17:12	6°♂50'04	1°21'20	retrograde	345 Mar 28 j 23:21	26°♂48'40	
minimum elong	336 Nov 27 j 17:12	6°♂50'04	1°21'20	opposition	345 Jun 17 j 06:18	25°♂25'26	0°56'24
max. Earth dist.	336 Nov 27 j 11:36	6°♂49'32	31.24986 AU	min. Earth dist.	345 Jun 17 j 02:54	25°♂25'39	29.18367 AU
retrograde	337 Mar 11 j 04:07	9°♂18'54		direct	345 Sep 05 j 06:26	24°♂02'11	
opposition	337 May 29 j 22:52	7°♂56'09	1°25'19				
min. Earth dist.	337 May 30 j 03:16	7°♂55'52	29.24622 AU	conjunction	345 Dec 17 j 04:28	26°♂30'20	0°50'55
direct	337 Aug 18 j 11:21	6°♂32'38		minimum elong	345 Dec 17 j 04:28	26°♂30'20	0°50'55
				max. Earth dist.	345 Dec 17 j 07:25	26°♂30'37	31.18004 AU
conjunction	337 Nov 30 j 02:36	9°♂01'14	1°18'22	retrograde	346 Mar 31 j 12:41	29°♂00'30	
minimum elong	337 Nov 30 j 02:36	9°♂01'14	1°18'22	opposition	346 Jun 19 j 19:25	27°♂37'14	0°52'20
max. Earth dist.	337 Nov 29 j 22:42	9°♂00'51	31.24111 AU	min. Earth dist.	346 Jun 19 j 15:17	27°♂37'30	29.17667 AU
retrograde	338 Mar 13 j 13:41	11°♂30'09		direct	346 Sep 07 j 17:11	26°♂14'03	
opposition	338 Jun 01 j 11:50	10°♂07'18	1°22'05				
min. Earth dist.	338 Jun 01 j 15:54	10°♂07'02	29.23697 AU	conjunction	346 Dec 19 j 14:01	28°♂42'11	0°47'05
direct	338 Aug 21 j 00:58	8°♂43'47		minimum elong	346 Dec 19 j 14:01	28°♂42'11	0°47'04
				max. Earth dist.	346 Dec 19 j 18:40	28°♂42'37	31.17251 AU
conjunction	338 Dec 02 j 11:38	11°♂12'16	1°15'17		347 Jan 24 j 11:58	0°♂	
minimum elong	338 Dec 02 j 11:38	11°♂12'16	1°15'16	retrograde	347 Apr 02 j 23:57	1°♂12'31	
max. Earth dist.	338 Dec 02 j 07:46	11°♂11'54	31.23177 AU		347 Jun 15 j 16:38	30°♂	
retrograde	339 Mar 16 j 01:51	13°♂41'17		opposition	347 Jun 22 j 08:40	29°♂49'13	0°48'12
opposition	339 Jun 04 j 00:44	12°♂18'21	1°18'45	min. Earth dist.	347 Jun 22 j 04:16	29°♂49'30	29.16853 AU
min. Earth dist.	339 Jun 04 j 03:02	12°♂18'11	29.22758 AU	direct	347 Sep 10 j 06:37	28°♂26'05	
direct	339 Aug 23 j 12:26	10°♂54'49			347 Nov 27 j 15:07	0°♂	
conjunction	339 Dec 04 j 20:53	13°♂23'11	1°12'06	conjunction	347 Dec 21 j 23:37	0°♂54'11	0°43'10
minimum elong	339 Dec 04 j 20:53	13°♂23'11	1°12'06	minimum elong	347 Dec 21 j 23:37	0°♂54'11	0°43'11
max. Earth dist.	339 Dec 04 j 18:38	13°♂22'59	31.22248 AU	max. Earth dist.	347 Dec 22 j 04:02	0°♂54'36	31.16387 AU
retrograde	340 Mar 17 j 11:04	15°♂52'20		retrograde	348 Apr 04 j 13:31	3°♂24'41	
opposition	340 Jun 05 j 13:42	14°♂29'18	1°15'17	opposition	348 Jun 23 j 21:44	2°♂01'19	0°44'00
min. Earth dist.	340 Jun 05 j 15:52	14°♂29'09	29.21858 AU	min. Earth dist.	348 Jun 23 j 16:00	2°♂01'42	29.15922 AU
direct	340 Aug 24 j 23:52	13°♂05'47		direct	348 Sep 11 j 17:58	0°♂38'12	
conjunction	340 Dec 06 j 06:00	15°♂34'04	1°08'49	conjunction	348 Dec 23 j 09:21	3°♂06'16	0°39'12
minimum elong	340 Dec 06 j 06:00	15°♂34'04	1°08'48	minimum elong	348 Dec 23 j 09:22	3°♂06'16	0°39'12
max. Earth dist.	340 Dec 06 j 04:36	15°♂33'57	31.21398 AU	max. Earth dist.	348 Dec 23 j 14:46	3°♂06'47	31.15380 AU
retrograde	341 Mar 19 j 22:33	18°♂03'21		retrograde	349 Apr 06 j 23:05	5°♂36'55	
opposition	341 Jun 08 j 02:30	16°♂40'15	1°11'43	opposition	349 Jun 26 j 11:00	4°♂13'28	0°39'44
min. Earth dist.	341 Jun 08 j 02:30	16°♂40'15	29.21041 AU	min. Earth dist.	349 Jun 26 j 05:35	4°♂13'50	29.14844 AU
direct	341 Aug 27 j 10:46	15°♂16'46		direct	349 Sep 14 j 05:51	2°♂50'22	
conjunction	341 Dec 08 j 15:11	17°♂45'00	1°05'25	conjunction	349 Dec 25 j 19:01	5°♂18'22	0°35'11
minimum elong	341 Dec 08 j 15:11	17°♂45'00	1°05'25	minimum elong	349 Dec 25 j 19:01	5°♂18'22	0°35'12
max. Earth dist.	341 Dec 08 j 14:46	17°♂44'58	31.20620 AU	max. Earth dist.	349 Dec 26 j 00:56	5°♂18'55	31.14254 AU
retrograde	342 Mar 22 j 10:02	20°♂14'27		retrograde	350 Apr 09 j 10:40	7°♂49'08	
opposition	342 Jun 10 j 15:25	18°♂51'17	1°08'02	opposition	350 Jun 29 j 00:01	6°♂25'35	0°35'24
min. Earth dist.	342 Jun 10 j 15:23	18°♂51'17	29.20308 AU	min. Earth dist.	350 Jun 28 j 16:56	6°♂26'04	29.13662 AU
direct	342 Aug 29 j 19:58	17°♂27'51		direct	350 Sep 16 j 17:27	5°♂02'28	
conjunction	342 Dec 11 j 00:28	19°♂56'02	1°01'56	conjunction	350 Dec 28 j 04:40	7°♂30'23	0°31'07
minimum elong	342 Dec 11 j 00:28	19°♂56'02	1°01'55	minimum elong	350 Dec 28 j 04:40	7°♂30'23	0°31'06
max. Earth dist.	342 Dec 11 j 01:36	19°♂56'09	31.19937 AU	max. Earth dist.	350 Dec 28 j 11:10	7°♂31'00	31.13043 AU
retrograde	343 Mar 24 j 22:02	22°♂25'39		retrograde	351 Apr 11 j 22:09	10°♂01'18	
opposition	343 Jun 13 j 04:22	21°♂02'28	1°04'15	opposition	351 Jul 01 j 13:16	8°♂37'38	0°31'02
min. Earth dist.	343 Jun 13 j 02:19	21°♂02'36	29.19643 AU	min. Earth dist.	351 Jul 01 j 06:23	8°♂38'06	29.12446 AU
direct	343 Sep 01 j 08:20	19°♂39'05		direct	351 Sep 19 j 03:18	7°♂14'29	
conjunction	343 Dec 13 j 09:36	22°♂07'15	0°58'20	conjunction	351 Dec 30 j 14:19	9°♂42'19	0°27'01
minimum elong	343 Dec 13 j 09:36	22°♂07'15	0°58'21	minimum elong	351 Dec 30 j 14:19	9°♂42'19	0°27'01
max. Earth dist.	343 Dec 13 j 10:57	22°♂07'23	31.19298 AU	max. Earth dist.	351 Dec 30 j 22:23	9°♂43'05	31.11838 AU

retrograde	352 Apr 13 j 09:42	12° $\overline{3}$ 13'22		retrograde	359 Apr 30 j 02:57	27° $\overline{3}$ 39'07	
opposition	352 Jul 03 j 02:16	10° $\overline{3}$ 49'35	0°26'37	opposition	359 Jul 19 j 21:26	26° $\overline{3}$ 14'57	0°-5'-8
min. Earth dist.	352 Jul 02 j 17:30	10° $\overline{3}$ 50'11	29.11256 AU	min. Earth dist.	359 Jul 19 j 06:24	26° $\overline{3}$ 15'58	29.05285 AU
direct	352 Sep 20 j 15:51	9° $\overline{3}$ 26'24		direct	359 Oct 06 j 22:29	24° $\overline{3}$ 51'58	
conjunction	352 Dec 31 j 23:58	11° $\overline{3}$ 54'12	0°22'52	conjunction	360 Jan 16 j 21:46	27° $\overline{3}$ 19'42	0°-6'-58
minimum elong	352 Dec 31 j 23:58	11° $\overline{3}$ 54'12	0°22'51	minimum elong	360 Jan 16 j 21:46	27° $\overline{3}$ 19'42	0°06'59
max. Earth dist.	353 Jan 01 j 08:07	11° $\overline{3}$ 54'58	31.10683 AU	behind sun begin	360 Jan 16 j 15:49	27° $\overline{3}$ 19'10	
retrograde	353 Apr 15 j 22:57	14° $\overline{3}$ 25'22		behind sun end	360 Jan 17 j 03:44	27° $\overline{3}$ 20'14	
opposition	353 Jul 05 j 15:12	13° $\overline{3}$ 01'29	0°22'09	max. Earth dist.	360 Jan 17 j 12:14	27° $\overline{3}$ 21'04	31.04856 AU
min. Earth dist.	353 Jul 05 j 06:02	13° $\overline{3}$ 02'06	29.10158 AU	retrograde	360 May 01 j 15:11	29° $\overline{3}$ 52'01	
direct	353 Sep 23 j 01:07	11° $\overline{3}$ 38'18		opposition	360 Jul 21 j 10:40	28° $\overline{3}$ 27'49	0°-9'-43
conjunction	354 Jan 03 j 09:47	14° $\overline{3}$ 06'03	0°18'41	min. Earth dist.	360 Jul 20 j 20:17	28° $\overline{3}$ 28'47	29.04432 AU
minimum elong	354 Jan 03 j 09:47	14° $\overline{3}$ 06'03	0°18'41	direct	360 Oct 08 j 08:31	27° $\overline{3}$ 04'51	
max. Earth dist.	354 Jan 03 j 20:01	14° $\overline{3}$ 07'01	31.09637 AU	conjunction	361 Jan 18 j 08:23	29° $\overline{3}$ 32'35	0°-11'-14
retrograde	354 Apr 18 j 10:18	16° $\overline{3}$ 37'21		minimum elong	361 Jan 18 j 08:23	29° $\overline{3}$ 32'35	0°11'15
opposition	354 Jul 08 j 04:12	15° $\overline{3}$ 13'24	0°17'39	behind sun begin	361 Jan 18 j 03:37	29° $\overline{3}$ 32'09	
min. Earth dist.	354 Jul 07 j 17:35	15° $\overline{3}$ 14'07	29.09163 AU	behind sun end	361 Jan 18 j 13:09	29° $\overline{3}$ 33'01	
direct	354 Sep 25 j 12:52	13° $\overline{3}$ 50'13		max. Earth dist.	361 Jan 18 j 23:51	29° $\overline{3}$ 34'03	31.03946 AU
conjunction	355 Jan 05 j 19:21	16° $\overline{3}$ 17'56	0°14'28		361 Jan 30 j 10:26	0° \approx	
minimum elong	355 Jan 05 j 19:21	16° $\overline{3}$ 17'56	0°14'28	retrograde	361 May 04 j 03:06	2° \approx 05'04	
behind sun begin	355 Jan 05 j 16:20	16° $\overline{3}$ 17'40		opposition	361 Jul 23 j 23:36	0° \approx 40'48	0°-14'-17
behind sun end	355 Jan 05 j 22:22	16° $\overline{3}$ 18'13		min. Earth dist.	361 Jul 23 j 07:55	0° \approx 41'52	29.03455 AU
max. Earth dist.	355 Jan 06 j 05:42	16° $\overline{3}$ 18'54	31.08707 AU	direct	361 Aug 18 j 23:44	30° $\overline{3}$	
retrograde	355 Apr 21 j 00:26	18° $\overline{3}$ 49'24			361 Oct 10 j 20:42	29° $\overline{3}$ 17'51	
opposition	355 Jul 10 j 17:17	17° $\overline{3}$ 25'23	0°13'08		361 Nov 30 j 05:36	0° \approx	
min. Earth dist.	355 Jul 10 j 05:37	17° $\overline{3}$ 26'10	29.08293 AU	conjunction	362 Jan 20 j 18:54	1° \approx 45'35	0°-15'-29
direct	355 Sep 27 j 23:33	16° $\overline{3}$ 02'14		minimum elong	362 Jan 20 j 18:54	1° \approx 45'35	0°15'29
conjunction	356 Jan 08 j 05:18	18° $\overline{3}$ 29'56	0°10'14	behind sun begin	362 Jan 20 j 16:58	1° \approx 45'24	
minimum elong	356 Jan 08 j 05:18	18° $\overline{3}$ 29'56	0°10'15	behind sun end	362 Jan 20 j 20:51	1° \approx 45'45	
behind sun begin	356 Jan 08 j 00:10	18° $\overline{3}$ 29'29		max. Earth dist.	362 Jan 21 j 09:48	1° \approx 46'59	31.02913 AU
behind sun end	356 Jan 08 j 10:26	18° $\overline{3}$ 30'24		retrograde	362 May 06 j 16:29	4° \approx 18'12	
max. Earth dist.	356 Jan 08 j 17:36	18° $\overline{3}$ 31'06	31.07880 AU	opposition	362 Jul 26 j 12:48	2° \approx 53'51	0°-18'-50
retrograde	356 Apr 22 j 12:44	21° $\overline{3}$ 01'34		min. Earth dist.	362 Jul 25 j 21:20	2° \approx 54'54	29.02378 AU
opposition	356 Jul 12 j 06:14	19° $\overline{3}$ 37'29	0°08'35	direct	362 Oct 13 j 06:00	1° \approx 30'53	
min. Earth dist.	356 Jul 11 j 18:04	19° $\overline{3}$ 38'19	29.07505 AU	conjunction	363 Jan 23 j 05:27	3° \approx 58'36	0°-19'-43
direct	356 Sep 29 j 12:11	18° $\overline{3}$ 14'23		minimum elong	363 Jan 23 j 05:27	3° \approx 58'36	0°19'44
conjunction	357 Jan 09 j 15:12	20° $\overline{3}$ 42'05	0°05'59	max. Earth dist.	363 Jan 23 j 21:58	4° \approx 00'09	31.01794 AU
minimum elong	357 Jan 09 j 15:12	20° $\overline{3}$ 42'05	0°05'59	retrograde	363 May 09 j 04:19	6° \approx 31'20	
behind sun begin	357 Jan 09 j 09:05	20° $\overline{3}$ 41'32		min. Earth dist.	363 Jul 28 j 09:28	5° \approx 08'02	29.01229 AU
behind sun end	357 Jan 09 j 21:19	20° $\overline{3}$ 42'39		opposition	363 Jul 29 j 01:50	5° \approx 06'54	0°-23'-21
max. Earth dist.	357 Jan 10 j 03:37	20° $\overline{3}$ 43'15	31.07133 AU	direct	363 Oct 15 j 17:51	3° \approx 43'55	
retrograde	357 Apr 25 j 02:39	23° $\overline{3}$ 13'53		conjunction	364 Jan 25 j 16:01	6° \approx 11'37	0°-23'-55
opposition	357 Jul 14 j 19:13	21° $\overline{3}$ 49'47	0°04'01	minimum elong	364 Jan 25 j 16:01	6° \approx 11'37	0°23'56
min. Earth dist.	357 Jul 14 j 05:32	21° $\overline{3}$ 50'42	29.06777 AU	max. Earth dist.	364 Jan 26 j 08:10	6° \approx 13'08	31.00643 AU
direct	357 Oct 01 j 23:04	20° $\overline{3}$ 26'42		retrograde	364 May 10 j 18:48	8° \approx 44'28	
conjunction	358 Jan 12 j 01:14	22° $\overline{3}$ 54'25	0°01'42	opposition	364 Jul 30 j 14:43	7° \approx 19'56	0°-27'-50
minimum elong	358 Jan 12 j 01:12	22° $\overline{3}$ 54'25	0°01'42	min. Earth dist.	364 Jul 29 j 21:51	7° \approx 21'06	29.00096 AU
behind sun begin	358 Jan 11 j 18:48	22° $\overline{3}$ 53'51		direct	364 Oct 17 j 04:34	5° \approx 56'55	
behind sun end	358 Jan 12 j 07:37	22° $\overline{3}$ 55'00		conjunction	365 Jan 27 j 02:44	8° \approx 24'37	0°-28'-6
max. Earth dist.	358 Jan 12 j 14:50	22° $\overline{3}$ 55'42	31.06402 AU	minimum elong	365 Jan 27 j 02:44	8° \approx 24'37	0°28'07
retrograde	358 Apr 27 j 13:43	25° $\overline{3}$ 26'24		max. Earth dist.	365 Jan 27 j 20:33	8° \approx 26'18	30.99519 AU
desc. node	358 Jun 01 j 18:34	25° $\overline{3}$ 07'20		retrograde	365 May 13 j 07:32	10° \approx 57'35	
opposition	358 Jul 17 j 08:22	24° $\overline{3}$ 02'16	0°00'-33	min. Earth dist.	365 Aug 01 j 10:22	9° \approx 34'09	28.99012 AU
min. Earth dist.	358 Jul 16 j 18:53	24° $\overline{3}$ 03'11	29.06047 AU	opposition	365 Aug 02 j 03:37	9° \approx 32'59	0°-32'-16
direct	358 Oct 04 j 10:47	22° $\overline{3}$ 39'15		direct	365 Oct 19 j 17:10	8° \approx 09'56	
conjunction	359 Jan 14 j 11:27	25° $\overline{3}$ 06'58	0°-2'-42	conjunction	366 Jan 29 j 13:17	10° \approx 37'38	0°-32'-14
minimum elong	359 Jan 14 j 11:27	25° $\overline{3}$ 06'58	0°02'44	minimum elong	366 Jan 29 j 13:17	10° \approx 37'38	0°32'14
behind sun begin	359 Jan 14 j 05:04	25° $\overline{3}$ 06'23		max. Earth dist.	366 Jan 30 j 07:13	10° \approx 39'20	30.98488 AU
behind sun end	359 Jan 14 j 17:51	25° $\overline{3}$ 07'33		retrograde	366 May 15 j 21:34	13° \approx 10'45	
max. Earth dist.	359 Jan 15 j 01:44	25° $\overline{3}$ 08'19	31.05667 AU	opposition	366 Aug 04 j 16:30	11° \approx 46'04	0°-36'-40

min. Earth dist.	366 Aug 03 j 21:45	11° 47 '21	28.98042 AU		374 Apr 01 j 04:29	0° 1 '14	
direct	366 Oct 22 j 04:00	10° 23 '00		retrograde	374 Jun 03 j 04:53	1° 1 '01'14	
					374 Aug 08 j 11:01	30° 1 ' 1	
conjunction	367 Feb 01 j 00:06	12° 50 '44	0°-36'-19	opposition	374 Aug 22 j 23:17	29° 36 '16	-1°-9'-29
minimum elong	367 Feb 01 j 00:06	12° 50 '44	0°36'20	min. Earth dist.	374 Aug 22 j 02:20	29° 37 '43	28.92320 AU
max. Earth dist.	367 Feb 01 j 19:10	12° 52 '32	30.97566 AU	direct	374 Nov 08 j 21:36	28° 13 '18	
	367 Apr 09 j 17:17	15° 1 ' 1			375 Jan 31 j 09:38	0° 1 ' 1	
retrograde	367 May 18 j 09:39	15° 23 '59					
	367 Jun 27 j 01:05	15° 1 ' 1		conjunction	375 Feb 18 j 18:58	0° 1 '41'17	-1°-6'-42
min. Earth dist.	367 Aug 06 j 10:45	14° 00 '31	28.97190 AU	minimum elong	375 Feb 18 j 18:58	0° 1 '41'17	1°06'43
opposition	367 Aug 07 j 05:24	13° 59 '15	0°-41'-1	max. Earth dist.	375 Feb 19 j 16:39	0° 1 '43'20	30.91789 AU
direct	367 Oct 24 j 16:06	12° 36 '12		retrograde	375 Jun 05 j 19:29	3° 1 '15'32	
	368 Feb 01 j 17:24	15° 1 ' 1		opposition	375 Aug 25 j 11:59	1° 1 '50'30	-1°-13'-11
				min. Earth dist.	375 Aug 24 j 14:24	1° 1 '51'59	28.91362 AU
conjunction	368 Feb 03 j 10:59	15° 03 '57	0°-40'-21	direct	375 Nov 11 j 08:37	0° 1 '27'27	
minimum elong	368 Feb 03 j 10:59	15° 03 '57	0°40'22				
max. Earth dist.	368 Feb 04 j 06:51	15° 05 '50	30.96778 AU	conjunction	376 Feb 21 j 06:51	2° 1 '55'28	-1°-10'-6
retrograde	368 May 20 j 00:12	17° 37 '20		minimum elong	376 Feb 21 j 06:51	2° 1 '55'28	1°10'07
opposition	368 Aug 08 j 18:11	16° 12 '34	0°-45'-18	max. Earth dist.	376 Feb 22 j 05:01	2° 1 '57'33	30.90791 AU
min. Earth dist.	368 Aug 07 j 21:51	16° 13 '58	28.96454 AU	retrograde	376 Jun 07 j 08:26	5° 1 '29'46	
	368 Oct 01 j 00:45	15° 1 ' 1		min. Earth dist.	376 Aug 26 j 03:48	4° 1 '06'05	28.90357 AU
direct	368 Oct 26 j 04:21	14° 49 '33		opposition	376 Aug 27 j 00:42	4° 1 '04'38	-1°-16'-46
	368 Nov 19 j 17:13	15° 1 ' 1		direct	376 Nov 12 j 21:21	2° 1 '41'33	
conjunction	369 Feb 04 j 21:57	17° 17 '20	0°-44'-20	conjunction	377 Feb 22 j 18:45	5° 1 '09'33	-1°-13'-25
minimum elong	369 Feb 04 j 21:57	17° 17 '20	0°44'22	minimum elong	377 Feb 22 j 18:44	5° 1 '09'33	1°13'26
max. Earth dist.	369 Feb 05 j 18:07	17° 19 '14	30.96077 AU	max. Earth dist.	377 Feb 23 j 17:13	5° 1 '11'41	30.89793 AU
retrograde	369 May 22 j 12:14	19° 50 '52		retrograde	377 Jun 09 j 23:06	7° 1 '43'54	
min. Earth dist.	369 Aug 10 j 11:12	18° 27 '26	28.95803 AU	opposition	377 Aug 29 j 13:06	6° 1 '18'42	-1°-20'-15
opposition	369 Aug 11 j 07:00	18° 26 '04	0°-49'-32	min. Earth dist.	377 Aug 28 j 14:59	6° 1 '20'14	28.89383 AU
direct	369 Oct 28 j 14:36	17° 03 '05		direct	377 Nov 15 j 10:11	4° 1 '55'33	
conjunction	370 Feb 07 j 09:08	19° 30 '54	0°-48'-15	conjunction	378 Feb 25 j 06:37	7° 1 '23'35	-1°-16'-36
minimum elong	370 Feb 07 j 09:08	19° 30 '54	0°48'16	minimum elong	378 Feb 25 j 06:36	7° 1 '23'35	1°16'37
max. Earth dist.	370 Feb 08 j 06:36	19° 32 '56	30.95460 AU	max. Earth dist.	378 Feb 26 j 05:07	7° 1 '25'43	30.88843 AU
retrograde	370 May 25 j 00:13	22° 04 '35		retrograde	378 Jun 12 j 11:18	9° 1 '58'00	
opposition	370 Aug 13 j 19:48	20° 39 '47	0°-53'-41	min. Earth dist.	378 Aug 31 j 04:17	8° 1 '34'13	28.88493 AU
min. Earth dist.	370 Aug 12 j 22:37	20° 41 '15	28.95203 AU	opposition	378 Sep 01 j 01:42	8° 1 '32'44	-1°-23'-36
direct	370 Oct 31 j 02:27	19° 16 '50		direct	378 Nov 17 j 21:04	7° 1 '09'32	
conjunction	371 Feb 09 j 20:15	21° 44 '41	0°-52'-6	conjunction	379 Feb 27 j 18:38	9° 1 '37'36	-1°-19'-41
minimum elong	371 Feb 09 j 20:14	21° 44 '41	0°52'08	minimum elong	379 Feb 27 j 18:38	9° 1 '37'36	1°19'42
max. Earth dist.	371 Feb 10 j 17:13	21° 46 '41	30.94863 AU	max. Earth dist.	379 Feb 28 j 18:17	9° 1 '39'50	30.88007 AU
retrograde	371 May 27 j 13:34	24° 18 '32		retrograde	379 Jun 15 j 00:02	12° 1 '12'05	
opposition	371 Aug 16 j 08:46	22° 53 '42	0°-57'-46	opposition	379 Sep 03 j 14:04	10° 1 '46'46	-1°-26'-50
min. Earth dist.	371 Aug 15 j 12:01	22° 55 '08	28.94610 AU	min. Earth dist.	379 Sep 02 j 15:24	10° 1 '48'21	28.87715 AU
direct	371 Nov 02 j 11:28	21° 30 '46		direct	379 Nov 20 j 09:30	9° 1 '23'33	
conjunction	372 Feb 12 j 07:52	23° 58 '41	0°-55'-53	conjunction	380 Mar 01 j 06:42	11° 1 '51'40	-1°-22'-39
minimum elong	372 Feb 12 j 07:52	23° 58 '41	0°55'53	minimum elong	380 Mar 01 j 06:42	11° 1 '51'40	1°22'39
max. Earth dist.	372 Feb 13 j 06:08	24° 00 '47	30.94240 AU	max. Earth dist.	380 Mar 02 j 05:43	11° 1 '53'51	30.87285 AU
retrograde	372 May 29 j 02:02	26° 32 '38		retrograde	380 Jun 16 j 13:23	14° 1 '26'14	
opposition	372 Aug 17 j 21:27	25° 07 '48	-1°-1'-46	min. Earth dist.	380 Sep 04 j 04:10	13° 1 '02'26	28.87070 AU
min. Earth dist.	372 Aug 17 j 00:12	25° 09 '16	28.93952 AU	opposition	380 Sep 05 j 02:24	13° 1 '00'53	-1°-29'-56
direct	372 Nov 03 j 23:10	23° 44 '52		direct	380 Nov 21 j 18:56	11° 1 '37'40	
conjunction	373 Feb 13 j 19:28	26° 12 '50	0°-59'-35	conjunction	381 Mar 03 j 19:00	14° 1 '05'51	-1°-25'-29
minimum elong	373 Feb 13 j 19:28	26° 12 '49	0°59'36	minimum elong	381 Mar 03 j 19:00	14° 1 '05'51	1°25'30
max. Earth dist.	373 Feb 14 j 16:47	26° 14 '51	30.93536 AU	max. Earth dist.	381 Mar 04 j 19:24	14° 1 '08'10	30.86695 AU
retrograde	373 May 31 j 16:21	28° 46 '54		retrograde	381 Jun 19 j 01:28	16° 1 '40'30	
opposition	373 Aug 20 j 10:22	27° 22 '01	-1°-5'-40	opposition	381 Sep 07 j 14:44	15° 1 '15'09	-1°-32'-54
min. Earth dist.	373 Aug 19 j 13:11	27° 23 '29	28.93202 AU	min. Earth dist.	381 Sep 06 j 15:45	15° 1 '16'45	28.86535 AU
direct	373 Nov 06 j 09:32	25° 59 '04		direct	381 Nov 24 j 06:42	13° 1 '51'56	
conjunction	374 Feb 16 j 07:10	28° 27 '03	-1°-3'-11	conjunction	382 Mar 06 j 07:05	16° 1 '20'11	-1°-28'-12
minimum elong	374 Feb 16 j 07:10	28° 27 '03	1°03'11	minimum elong	382 Mar 06 j 07:05	16° 1 '20'11	1°28'12
max. Earth dist.	374 Feb 17 j 05:30	28° 29 '10	30.92712 AU	max. Earth dist.	382 Mar 07 j 06:47	16° 1 '22'26	30.86217 AU

retrograde	382 Jun 21 j 15:11	18° ✕ 54'56		minimum elong	390 Mar 24 j 14:11	4° ° 19'53	1°44'46
min. Earth dist.	382 Sep 09 j 04:10	17° ✕ 31'12	28.86111 AU	max. Earth dist.	390 Mar 25 j 13:29	4° ° 22'04	30.82107 AU
opposition	382 Sep 10 j 03:10	17° ✕ 29'36	-1°-35'-43	retrograde	390 Jul 10 j 03:25	6° ° 54'52	
direct	382 Nov 26 j 16:30	16° ✕ 06'23		min. Earth dist.	390 Sep 27 j 07:18	5° ° 30'51	28.81955 AU
				opposition	390 Sep 28 j 04:30	5° ° 29'22	-1°-52'-48
conjunction	383 Mar 08 j 19:38	18° ✕ 34'45	-1°-30'-46	direct	390 Dec 14 j 15:47	4° ° 05'52	
minimum elong	383 Mar 08 j 19:38	18° ✕ 34'45	1°30'48				
max. Earth dist.	383 Mar 09 j 20:29	18° ✕ 37'05	30.85816 AU	conjunction	391 Mar 27 j 03:17	6° ° 34'42	-1°-46'-8
retrograde	383 Jun 24 j 03:36	21° ° 09'35		minimum elong	391 Mar 27 j 03:17	6° ° 34'42	1°46'10
opposition	383 Sep 12 j 15:26	19° ✕ 44'15	-1°-38'-24	max. Earth dist.	391 Mar 28 j 01:29	6° ° 36'47	30.81591 AU
min. Earth dist.	383 Sep 11 j 16:46	19° ✕ 45'50	28.85734 AU	retrograde	391 Jul 12 j 16:16	9° ° 09'40	
direct	383 Nov 29 j 03:29	18° ✕ 21'04		opposition	391 Sep 30 j 16:17	7° ° 44'07	-1°-54'-11
				min. Earth dist.	391 Sep 29 j 19:22	7° ° 45'35	28.81511 AU
conjunction	384 Mar 10 j 08:16	20° ✕ 49'31	-1°-33'-12	direct	391 Dec 17 j 01:54	6° ° 20'33	
minimum elong	384 Mar 10 j 08:16	20° ✕ 49'31	1°33'13				
max. Earth dist.	384 Mar 11 j 08:18	20° ✕ 51'47	30.85451 AU	conjunction	392 Mar 28 j 16:36	8° ° 49'27	-1°-47'-22
retrograde	384 Jun 25 j 18:40	23° ✕ 24'27		minimum elong	392 Mar 28 j 16:36	8° ° 49'27	1°47'23
min. Earth dist.	384 Sep 13 j 04:43	22° ✕ 00'44	28.85366 AU	max. Earth dist.	392 Mar 29 j 15:47	8° ° 51'38	30.81203 AU
opposition	384 Sep 14 j 03:44	21° ✕ 59'08	-1°-40'-56	retrograde	392 Jul 14 j 03:55	11° ° 24'23	
direct	384 Nov 30 j 13:49	20° ✕ 35'56		min. Earth dist.	392 Oct 01 j 07:24	10° ° 00'17	28.81195 AU
				opposition	392 Oct 02 j 04:03	9° ° 58'50	-1°-55'-25
conjunction	385 Mar 12 j 21:03	23° ✕ 04'30	-1°-35'-30	direct	392 Dec 18 j 12:55	8° ° 35'13	
minimum elong	385 Mar 12 j 21:03	23° ✕ 04'30	1°35'32				
max. Earth dist.	385 Mar 13 j 21:14	23° ✕ 06'46	30.85042 AU	conjunction	393 Mar 31 j 05:43	11° ° 04'10	-1°-48'-26
retrograde	385 Jun 28 j 08:07	25° ✕ 39'29		minimum elong	393 Mar 31 j 05:43	11° ° 04'10	1°48'27
opposition	385 Sep 16 j 16:04	24° ✕ 14'11	-1°-43'-19	max. Earth dist.	393 Apr 01 j 04:04	11° ° 06'17	30.80967 AU
min. Earth dist.	385 Sep 15 j 18:08	24° ✕ 15'43	28.84931 AU	retrograde	393 Jul 16 j 17:37	13° ° 39'06	
direct	385 Dec 03 j 02:23	22° ✕ 50'59		opposition	393 Oct 04 j 15:45	12° ° 13'33	-1°-56'-27
				min. Earth dist.	393 Oct 03 j 18:37	12° ° 15'02	28.81039 AU
conjunction	386 Mar 15 j 10:01	25° ✕ 19'37	-1°-37'-39	direct	393 Dec 20 j 23:30	10° ° 49'54	
minimum elong	386 Mar 15 j 10:01	25° ✕ 19'37	1°37'40				
max. Earth dist.	386 Mar 16 j 09:48	25° ✕ 21'52	30.84574 AU	conjunction	394 Apr 02 j 19:05	13° ° 18'56	-1°-49'-19
retrograde	386 Jun 30 j 23:24	27° ✕ 54'39		minimum elong	394 Apr 02 j 19:05	13° ° 18'56	1°49'20
min. Earth dist.	386 Sep 18 j 05:44	26° ✕ 30'54	28.84417 AU	max. Earth dist.	394 Apr 03 j 17:50	13° ° 21'04	30.80877 AU
opposition	386 Sep 19 j 04:18	26° ✕ 29'19	-1°-45'-32	retrograde	394 Jul 19 j 05:37	15° ° 53'52	
direct	386 Dec 05 j 15:21	25° ✕ 06'05		min. Earth dist.	394 Oct 06 j 07:13	14° ° 29'45	28.81021 AU
				opposition	394 Oct 07 j 03:28	14° ° 28'19	-1°-57'-19
conjunction	387 Mar 17 j 22:58	27° ✕ 34'47	-1°-39'-40	direct	394 Dec 23 j 11:09	13° ° 04'40	
minimum elong	387 Mar 17 j 22:58	27° ✕ 34'47	1°39'41				
max. Earth dist.	387 Mar 18 j 22:05	27° ✕ 36'58	30.84005 AU	conjunction	395 Apr 05 j 08:33	15° ° 33'48	-1°-50'-3
	387 Jun 08 j 22:23	0° °		minimum elong	395 Apr 05 j 08:33	15° ° 33'48	1°50'04
retrograde	387 Jul 03 j 12:16	0° ° 09'50		max. Earth dist.	395 Apr 06 j 06:58	15° ° 35'54	30.80931 AU
	387 Jul 28 j 07:21	30° ° R ✕		retrograde	395 Jul 21 j 20:12	18° ° 08'43	
opposition	387 Sep 21 j 16:37	28° ✕ 44'28	-1°-47'-36	opposition	395 Oct 09 j 15:02	16° ° 43'13	-1°-58'00
min. Earth dist.	387 Sep 20 j 19:30	28° ✕ 45'57	28.83813 AU	min. Earth dist.	395 Oct 08 j 18:09	16° ° 44'41	28.81117 AU
direct	387 Dec 08 j 02:41	27° ✕ 21'11		direct	395 Dec 25 j 23:16	15° ° 19'34	
conjunction	388 Mar 19 j 12:09	29° ✕ 49'55	-1°-41'-31	conjunction	396 Apr 06 j 22:11	17° ° 48'48	-1°-50'-36
minimum elong	388 Mar 19 j 12:09	29° ✕ 49'55	1°41'31	minimum elong	396 Apr 06 j 22:11	17° ° 48'48	1°50'37
max. Earth dist.	388 Mar 20 j 11:35	29° ✕ 52'08	30.83373 AU	max. Earth dist.	396 Apr 07 j 20:01	17° ° 50'51	30.81052 AU
	388 Mar 23 j 23:04	0° °		retrograde	396 Jul 23 j 09:21	20° ° 23'43	
retrograde	388 Jul 05 j 02:16	2° ° 24'57		min. Earth dist.	396 Oct 10 j 07:19	18° ° 59'38	28.81263 AU
min. Earth dist.	388 Sep 22 j 06:50	1° ° 01'04	28.83159 AU	opposition	396 Oct 11 j 02:39	18° ° 58'16	-1°-58'-30
opposition	388 Sep 23 j 04:31	0° ° 59'32	-1°-49'-30	direct	396 Dec 27 j 10:05	17° ° 34'37	
	388 Nov 01 j 12:42	30° ° R ✕					
direct	388 Dec 09 j 16:06	29° ✕ 36'11		conjunction	397 Apr 09 j 12:00	20° ° 03'58	-1°-50'-59
	389 Jan 15 j 20:36	0° °		minimum elong	397 Apr 09 j 12:01	20° ° 03'58	1°51'00
				max. Earth dist.	397 Apr 10 j 09:55	20° ° 06'01	30.81208 AU
conjunction	389 Mar 22 j 01:09	2° ° 04'57	-1°-43'-13	retrograde	397 Jul 26 j 00:12	22° ° 38'52	
minimum elong	389 Mar 22 j 01:09	2° ° 04'57	1°43'14	opposition	397 Oct 13 j 14:13	21° ° 13'29	-1°-58'-50
max. Earth dist.	389 Mar 22 j 23:26	2° ° 07'04	30.82716 AU	min. Earth dist.	397 Oct 12 j 18:35	21° ° 14'52	28.81404 AU
retrograde	389 Jul 07 j 16:10	4° ° 39'59		direct	397 Dec 29 j 23:27	19° ° 49'50	
opposition	389 Sep 25 j 16:37	3° ° 14'30	-1°-51'-14				
min. Earth dist.	389 Sep 24 j 19:51	3° ° 15'58	28.82526 AU	conjunction	398 Apr 12 j 01:44	22° ° 19'17	-1°-51'-12
direct	389 Dec 12 j 03:01	1° ° 51'05		minimum elong	398 Apr 12 j 01:44	22° ° 19'17	1°51'13
				max. Earth dist.	398 Apr 12 j 22:03	22° ° 21'11	30.81320 AU
conjunction	390 Mar 24 j 14:11	4° ° 19'53	-1°-44'-45	retrograde	398 Jul 28 j 14:23	24° ° 54'10	

min. Earth dist.	398 Oct 15 j 07:49	23° Υ 30'06	28.81486 AU	opposition	406 Nov 02 j 20:12	11° 8 30'05	-1°-53'-37
opposition	398 Oct 16 j 01:59	23° Υ 28'49	-1°-58'-58	min. Earth dist.	406 Nov 02 j 05:41	11° 8 31'06	28.81945 AU
direct	399 Jan 01 j 10:42	22° Υ 05'08		direct	407 Jan 19 j 09:19	10° 8 05'59	
conjunction	399 Apr 14 j 15:53	24° Υ 34'41	-1°-51'-15	conjunction	407 May 03 j 08:12	12° 8 36'06	-1°-45'-35
minimum elong	399 Apr 14 j 15:54	24° Υ 34'41	1°51'16	minimum elong	407 May 03 j 08:12	12° 8 36'06	1°45'36
max. Earth dist.	399 Apr 15 j 12:22	24° Υ 36'36	30.81358 AU	max. Earth dist.	407 May 03 j 23:08	12° 8 37'30	30.82078 AU
retrograde	399 Jul 31 j 02:46	27° Υ 09'30			407 Jul 24 j 13:23	15° 8	
opposition	399 Oct 18 j 13:26	25° Υ 44'11	-1°-58'-55	retrograde	407 Aug 18 j 08:44	15° 8 10'13	
min. Earth dist.	399 Oct 17 j 19:31	25° Υ 45'27	28.81471 AU		407 Sep 12 j 07:48	15° R 8	
direct	400 Jan 03 j 23:44	24° Υ 20'29		opposition	407 Nov 05 j 07:13	13° 8 45'06	-1°-52'-9
				min. Earth dist.	407 Nov 04 j 18:01	13° 8 46'03	28.82465 AU
conjunction	400 Apr 16 j 05:54	26° Υ 50'05	-1°-51'-8	direct	408 Jan 21 j 20:49	12° 8 21'00	
minimum elong	400 Apr 16 j 05:54	26° Υ 50'05	1°51'09				
max. Earth dist.	400 Apr 17 j 00:25	26° Υ 51'50	30.81311 AU	conjunction	408 May 04 j 22:33	14° 8 51'14	-1°-44'-8
retrograde	400 Aug 01 j 16:24	29° Υ 24'51		minimum elong	408 May 04 j 22:33	14° 8 51'14	1°44'09
min. Earth dist.	400 Oct 19 j 08:00	28° Υ 00'45	28.81395 AU	max. Earth dist.	408 May 05 j 13:48	14° 8 52'39	30.82650 AU
opposition	400 Oct 20 j 01:00	27° Υ 59'33	-1°-58'-42		408 May 08 j 20:24	15° 8	
direct	401 Jan 05 j 10:29	26° Υ 35'46		retrograde	408 Aug 19 j 21:43	17° 8 25'14	
				opposition	408 Nov 06 j 18:14	16° 8 00'14	-1°-50'-30
conjunction	401 Apr 18 j 19:54	29° Υ 05'27	-1°-50'-50	min. Earth dist.	408 Nov 06 j 05:10	16° 8 01'09	28.83058 AU
minimum elong	401 Apr 18 j 19:54	29° Υ 05'27	1°50'51		408 Dec 16 j 04:09	15° R 8	
max. Earth dist.	401 Apr 19 j 14:51	29° Υ 07'14	30.81210 AU	direct	409 Jan 23 j 09:36	14° 8 36'07	
	401 May 13 j 13:23	0° 8			409 Mar 01 j 23:25	15° 8	
retrograde	401 Aug 04 j 04:07	1° 8 40'07					
opposition	401 Oct 22 j 12:26	0° 8 14'50	-1°-58'-18	conjunction	409 May 07 j 12:38	17° 8 06'26	-1°-42'-31
min. Earth dist.	401 Oct 21 j 20:14	0° 8 15'58	28.81281 AU	minimum elong	409 May 07 j 12:39	17° 8 06'27	1°42'32
	401 Oct 31 j 07:00	30° R Υ		max. Earth dist.	409 May 08 j 02:01	17° 8 07'42	30.83268 AU
direct	402 Jan 07 j 22:00	28° Υ 51'00		retrograde	409 Aug 22 j 12:20	19° 8 40'22	
	402 Mar 14 j 15:04	0° 8		opposition	409 Nov 09 j 05:18	18° 8 15'26	-1°-48'-41
				min. Earth dist.	409 Nov 08 j 17:12	18° 8 16'18	28.83680 AU
conjunction	402 Apr 21 j 09:52	1° 8 20'43	-1°-50'-23	direct	410 Jan 25 j 21:02	16° 8 51'19	
minimum elong	402 Apr 21 j 09:52	1° 8 20'43	1°50'24				
max. Earth dist.	402 Apr 22 j 03:20	1° 8 22'22	30.81117 AU	conjunction	410 May 10 j 03:10	19° 8 21'45	-1°-40'-44
retrograde	402 Aug 06 j 16:58	3° 8 55'18		minimum elong	410 May 10 j 03:10	19° 8 21'45	1°40'46
opposition	402 Oct 24 j 23:39	2° 8 30'01	-1°-57'-43	max. Earth dist.	410 May 10 j 16:41	19° 8 23'01	30.83871 AU
min. Earth dist.	402 Oct 24 j 07:33	2° 8 31'09	28.81209 AU	retrograde	410 Aug 25 j 00:09	21° 8 55'34	
direct	403 Jan 10 j 09:02	1° 8 06'06		opposition	410 Nov 11 j 16:16	20° 8 30'42	-1°-46'-42
				min. Earth dist.	410 Nov 11 j 05:23	20° 8 31'29	28.84244 AU
conjunction	403 Apr 23 j 23:58	3° 8 35'54	-1°-49'-45	direct	411 Jan 28 j 09:12	19° 8 06'34	
minimum elong	403 Apr 23 j 23:58	3° 8 35'54	1°49'46				
max. Earth dist.	403 Apr 24 j 17:28	3° 8 37'33	30.81068 AU	conjunction	411 May 12 j 17:41	21° 8 37'04	-1°-38'-49
retrograde	403 Aug 09 j 03:46	6° 8 10'23		minimum elong	411 May 12 j 17:42	21° 8 37'04	1°38'49
opposition	403 Oct 27 j 10:57	4° 8 45'06	-1°-56'-58	max. Earth dist.	411 May 13 j 05:02	21° 8 38'08	30.84403 AU
min. Earth dist.	403 Oct 26 j 20:03	4° 8 46'10	28.81200 AU	retrograde	411 Aug 27 j 13:10	24° 8 10'46	
direct	404 Jan 12 j 20:49	3° 8 21'08		opposition	411 Nov 14 j 03:16	22° 8 45'58	-1°-44'-33
				min. Earth dist.	411 Nov 13 j 16:56	22° 8 46'42	28.84723 AU
conjunction	404 Apr 25 j 14:01	5° 8 51'00	-1°-48'-58	direct	412 Jan 30 j 20:51	21° 8 21'47	
minimum elong	404 Apr 25 j 14:01	5° 8 51'00	1°48'58				
max. Earth dist.	404 Apr 26 j 06:42	5° 8 52'34	30.81120 AU	conjunction	412 May 14 j 08:15	23° 8 52'21	-1°-36'-44
retrograde	404 Aug 10 j 17:20	8° 8 25'23		minimum elong	412 May 14 j 08:15	23° 8 52'21	1°36'45
opposition	404 Oct 28 j 21:57	7° 8 00'07	-1°-56'-1	max. Earth dist.	412 May 14 j 19:08	23° 8 53'22	30.84821 AU
min. Earth dist.	404 Oct 28 j 06:32	7° 8 01'13	28.81308 AU	retrograde	412 Aug 28 j 23:46	26° 8 25'54	
direct	405 Jan 14 j 08:32	5° 8 36'05		opposition	412 Nov 15 j 14:15	25° 8 01'08	-1°-42'-15
				min. Earth dist.	412 Nov 15 j 05:39	25° 8 01'45	28.85089 AU
conjunction	405 Apr 28 j 04:01	8° 8 06'02	-1°-48'00	direct	413 Feb 01 j 08:20	23° 8 36'53	
minimum elong	405 Apr 28 j 04:02	8° 8 06'02	1°48'01				
max. Earth dist.	405 Apr 28 j 20:13	8° 8 07'33	30.81290 AU	conjunction	413 May 16 j 22:43	26° 8 07'30	-1°-34'-31
retrograde	405 Aug 13 j 05:22	10° 8 40'20		minimum elong	413 May 16 j 22:44	26° 8 07'30	1°34'32
opposition	405 Oct 31 j 09:10	9° 8 15'06	-1°-54'-54	max. Earth dist.	413 May 17 j 08:00	26° 8 08'22	30.85165 AU
min. Earth dist.	405 Oct 30 j 19:07	9° 8 16'06	28.81556 AU	retrograde	413 Aug 31 j 13:03	28° 8 40'53	
direct	406 Jan 16 j 19:26	7° 8 51'02		opposition	413 Nov 18 j 01:03	27° 8 16'09	-1°-39'-48
				min. Earth dist.	413 Nov 17 j 16:25	27° 8 16'46	28.85395 AU
conjunction	406 Apr 30 j 18:04	10° 8 21'03	-1°-46'-53	direct	414 Feb 03 j 20:05	25° 8 51'49	
minimum elong	406 Apr 30 j 18:04	10° 8 21'03	1°46'53				
max. Earth dist.	406 May 01 j 10:20	10° 8 22'34	30.81620 AU	conjunction	414 May 19 j 13:07	28° 8 22'29	-1°-32'-9
retrograde	406 Aug 15 j 19:27	12° 8 55'15		minimum elong	414 May 19 j 13:07	28° 8 22'29	1°32'10

max. Earth dist.	414 May 19 j 21:28	28° ♄ 23'16	30.85450 AU	max. Earth dist.	422 Jun 07 j 09:10	16° ♊ 18'29	30.90432 AU
	414 Jul 05 j 14:01	0° ♊		retrograde	422 Sep 21 j 02:41	18° ♊ 50'21	
retrograde	414 Sep 02 j 23:33	0° ♊ 55'42		opposition	422 Dec 08 j 00:11	17° ♊ 26'14	-1°-11'-33
	414 Nov 03 j 02:45	30° ♄		min. Earth dist.	422 Dec 07 j 22:07	17° ♊ 26'23	28.90932 AU
opposition	414 Nov 20 j 11:55	29° ♄ 31'00	-1°-37'-12	direct	423 Feb 24 j 07:46	16° ♊ 01'33	
min. Earth dist.	414 Nov 20 j 05:12	29° ♄ 31'28	28.85670 AU				
direct	415 Feb 06 j 07:31	28° ♄ 06'34		conjunction	423 Jun 09 j 21:40	18° ♊ 32'54	-1°-5'-11
	415 May 05 j 07:58	0° ♊		minimum elong	423 Jun 09 j 21:41	18° ♊ 32'54	1°05'11
				max. Earth dist.	423 Jun 09 j 22:33	18° ♊ 32'59	30.91331 AU
conjunction	415 May 22 j 03:37	0° ♊ 37'17	-1°-29'-39	retrograde	423 Sep 23 j 12:21	21° ♊ 04'48	
minimum elong	415 May 22 j 03:37	0° ♊ 37'17	1°29'40	opposition	423 Dec 10 j 10:45	19° ♊ 40'46	-1°-7'-48
max. Earth dist.	415 May 22 j 11:22	0° ♊ 38'00	30.85740 AU	min. Earth dist.	423 Dec 10 j 10:46	19° ♊ 40'46	28.91797 AU
retrograde	415 Sep 05 j 12:03	3° ♊ 10'19		direct	424 Feb 26 j 18:55	18° ♊ 16'04	
opposition	415 Nov 22 j 22:27	1° ♊ 45'38	-1°-34'-28				
min. Earth dist.	415 Nov 22 j 15:39	1° ♊ 46'07	28.85963 AU	conjunction	424 Jun 11 j 12:01	20° ♊ 47'28	-1°-1'-38
direct	416 Feb 08 j 21:21	0° ♊ 21'08		minimum elong	424 Jun 11 j 12:02	20° ♊ 47'28	1°01'39
				max. Earth dist.	424 Jun 11 j 11:51	20° ♊ 47'27	30.92162 AU
conjunction	416 May 23 j 17:55	2° ♊ 51'54	-1°-27'-1	retrograde	424 Sep 25 j 00:13	23° ♊ 19'12	
minimum elong	416 May 23 j 17:55	2° ♊ 51'54	1°27'03	opposition	424 Dec 11 j 21:14	21° ♊ 55'15	-1°-3'-57
max. Earth dist.	416 May 24 j 00:13	2° ♊ 52'29	30.86064 AU	min. Earth dist.	424 Dec 11 j 21:23	21° ♊ 55'15	28.92569 AU
retrograde	416 Sep 07 j 00:09	5° ♊ 24'46		direct	425 Feb 28 j 08:05	20° ♊ 30'31	
opposition	416 Nov 24 j 09:11	4° ♊ 00'07	-1°-31'-35				
min. Earth dist.	416 Nov 24 j 03:47	4° ♊ 00'30	28.86334 AU	conjunction	425 Jun 14 j 02:06	23° ♊ 01'58	0°-57'-59
direct	417 Feb 10 j 08:54	2° ♊ 35'32		minimum elong	425 Jun 14 j 02:06	23° ♊ 01'58	0°58'00
				max. Earth dist.	425 Jun 14 j 00:15	23° ♊ 01'47	30.92891 AU
conjunction	417 May 26 j 08:06	5° ♊ 06'21	-1°-24'-16	retrograde	425 Sep 27 j 11:35	25° ♊ 33'32	
minimum elong	417 May 26 j 08:07	5° ♊ 06'21	1°24'16	opposition	425 Dec 14 j 07:48	24° ♊ 09'37	-1°00'-1
max. Earth dist.	417 May 26 j 14:39	5° ♊ 06'58	30.86490 AU	min. Earth dist.	425 Dec 14 j 09:41	24° ♊ 09'29	28.93263 AU
retrograde	417 Sep 09 j 12:27	7° ♊ 39'04		direct	426 Mar 02 j 19:06	22° ♊ 44'49	
opposition	417 Nov 26 j 19:45	6° ♊ 14'27	-1°-28'-34				
min. Earth dist.	417 Nov 26 j 14:22	6° ♊ 14'50	28.86808 AU	conjunction	426 Jun 16 j 16:24	25° ♊ 16'18	0°-54'-16
direct	418 Feb 12 j 22:07	4° ♊ 49'50		minimum elong	426 Jun 16 j 16:24	25° ♊ 16'18	0°54'18
				max. Earth dist.	426 Jun 16 j 14:12	25° ♊ 16'06	30.93556 AU
conjunction	418 May 28 j 22:17	7° ♊ 20'43	-1°-21'-23	retrograde	426 Sep 29 j 23:07	27° ♊ 47'39	
minimum elong	418 May 28 j 22:17	7° ♊ 20'43	1°21'24	opposition	426 Dec 16 j 18:03	26° ♊ 23'48	0°-56'00
max. Earth dist.	418 May 29 j 03:02	7° ♊ 21'09	30.87038 AU	min. Earth dist.	426 Dec 16 j 20:28	26° ♊ 23'38	28.93890 AU
retrograde	418 Sep 12 j 02:22	9° ♊ 53'16		direct	427 Mar 05 j 08:44	24° ♊ 58'55	
opposition	418 Nov 29 j 06:14	8° ♊ 28'43	-1°-25'-25				
min. Earth dist.	418 Nov 29 j 01:35	8° ♊ 29'03	28.87431 AU	conjunction	427 Jun 19 j 06:29	27° ♊ 30'25	0°-50'-28
direct	419 Feb 15 j 10:00	7° ♊ 04'04		minimum elong	427 Jun 19 j 06:29	27° ♊ 30'25	0°50'29
				max. Earth dist.	427 Jun 19 j 02:08	27° ♊ 30'01	30.94177 AU
conjunction	419 May 31 j 12:39	9° ♊ 35'02	-1°-18'-22		427 Sep 22 j 21:33	0° ♄	
minimum elong	419 May 31 j 12:40	9° ♊ 35'02	1°18'23	retrograde	427 Oct 02 j 12:08	0° ♄ 01'35	
max. Earth dist.	419 May 31 j 17:51	9° ♊ 35'31	30.87732 AU		427 Oct 12 j 02:58	30° ♄	
retrograde	419 Sep 14 j 13:35	12° ♊ 07'27		opposition	427 Dec 19 j 04:25	28° ♊ 37'45	0°-51'-54
opposition	419 Dec 01 j 16:48	10° ♊ 42'59	-1°-22'-8	min. Earth dist.	427 Dec 19 j 07:48	28° ♊ 37'30	28.94511 AU
min. Earth dist.	419 Dec 01 j 12:57	10° ♊ 43'16	28.88182 AU	direct	428 Mar 06 j 21:35	27° ♊ 12'47	
direct	420 Feb 17 j 22:32	9° ♊ 18'19					
				conjunction	428 Jun 20 j 20:28	29° ♊ 44'19	0°-46'-36
conjunction	420 Jun 02 j 02:44	11° ♊ 49'22	-1°-15'-14	minimum elong	428 Jun 20 j 20:28	29° ♊ 44'19	0°46'37
minimum elong	420 Jun 02 j 02:45	11° ♊ 49'22	1°15'16	max. Earth dist.	428 Jun 20 j 16:24	29° ♊ 43'56	30.94804 AU
max. Earth dist.	420 Jun 02 j 06:13	11° ♊ 49'42	30.88559 AU		428 Jun 27 j 21:22	0° ♄	
retrograde	420 Sep 16 j 02:30	14° ♊ 21'40		retrograde	428 Oct 03 j 22:20	2° ♄ 15'16	
opposition	420 Dec 03 j 03:14	12° ♊ 57'19	-1°-18'-43	opposition	428 Dec 20 j 14:44	0° ♄ 51'28	0°-47'-43
min. Earth dist.	420 Dec 02 j 23:33	12° ♊ 57'34	28.89060 AU	min. Earth dist.	428 Dec 20 j 19:06	0° ♄ 51'09	28.95152 AU
direct	421 Feb 19 j 09:57	11° ♊ 32'38			429 Jan 22 j 03:16	30° ♄	
				direct	429 Mar 09 j 10:56	29° ♊ 26'26	
conjunction	421 Jun 04 j 17:02	14° ♊ 03'48	-1°-12'00		429 Apr 23 j 23:22	0° ♄	
minimum elong	421 Jun 04 j 17:02	14° ♊ 03'48	1°12'00				
max. Earth dist.	421 Jun 04 j 20:35	14° ♊ 04'07	30.89475 AU	conjunction	429 Jun 23 j 10:14	1° ♄ 57'58	0°-42'-40
retrograde	421 Sep 18 j 13:25	16° ♊ 35'57		minimum elong	429 Jun 23 j 10:14	1° ♄ 57'58	0°42'40
opposition	421 Dec 05 j 13:45	15° ♊ 11'44	-1°-15'-11	max. Earth dist.	429 Jun 23 j 04:22	1° ♄ 57'26	30.95490 AU
min. Earth dist.	421 Dec 05 j 11:39	15° ♊ 11'52	28.89997 AU	retrograde	429 Oct 06 j 11:02	4° ♄ 28'43	
direct	422 Feb 21 j 20:47	13° ♊ 47'04		opposition	429 Dec 23 j 00:51	3° ♄ 04'57	0°-43'-29
				min. Earth dist.	429 Dec 23 j 05:19	3° ♄ 04'38	28.95887 AU
conjunction	422 Jun 07 j 07:16	16° ♊ 18'19	-1°-8'-38	direct	430 Mar 11 j 23:03	1° ♄ 39'51	
minimum elong	422 Jun 07 j 07:16	16° ♊ 18'19	1°08'39				

conjunction	430 Jun 26 j 00:06	4°☾11'25	0°-38'-40	conjunction	438 Jul 14 j 12:54	21°☾57'38	0°-5'-13
minimum elong	430 Jun 26 j 00:06	4°☾11'25	0°38'41	minimum elong	438 Jul 14 j 12:54	21°☾57'38	0°05'15
max. Earth dist.	430 Jun 25 j 18:30	4°☾10'54	30.96271 AU	behind sun begin	438 Jul 14 j 06:32	21°☾57'04	
retrograde	430 Oct 08 j 21:37	6°☾41'57		behind sun end	438 Jul 14 j 19:17	21°☾58'12	
opposition	430 Dec 25 j 11:10	5°☾18'15	0°-39'-11	max. Earth dist.	438 Jul 13 j 23:20	21°☾56'23	31.04998 AU
min. Earth dist.	430 Dec 25 j 16:58	5°☾17'50	28.96727 AU	retrograde	438 Oct 26 j 16:06	24°☾26'59	
direct	431 Mar 14 j 11:06	3°☾53'07		opposition	439 Jan 11 j 21:23	23°☾04'02	0°-3'-15
				min. Earth dist.	439 Jan 12 j 08:43	23°☾03'14	29.05442 AU
conjunction	431 Jun 28 j 13:47	6°☾24'41	0°-34'-37	direct	439 Apr 01 j 10:22	21°☾38'52	
minimum elong	431 Jun 28 j 13:47	6°☾24'41	0°34'37				
max. Earth dist.	431 Jun 28 j 06:49	6°☾24'03	30.97188 AU	conjunction	439 Jul 17 j 02:22	24°☾10'49	0°00'-55
retrograde	431 Oct 11 j 09:38	8°☾55'03		minimum elong	439 Jul 17 j 02:20	24°☾10'49	0°00'55
opposition	431 Dec 27 j 21:17	7°☾31'25	0°-34'-50	behind sun begin	439 Jul 16 j 19:46	24°☾10'14	
min. Earth dist.	431 Dec 28 j 02:36	7°☾31'02	28.97709 AU	behind sun end	439 Jul 17 j 08:55	24°☾11'23	
direct	432 Mar 15 j 22:57	6°☾06'15		max. Earth dist.	439 Jul 16 j 12:48	24°☾09'34	31.05843 AU
				asc. node	439 Oct 02 j 01:27	26°☾27'33	
conjunction	432 Jun 30 j 03:29	8°☾37'53	0°-30'-31	retrograde	439 Oct 29 j 02:42	26°☾39'59	
minimum elong	432 Jun 30 j 03:29	8°☾37'53	0°30'33	opposition	440 Jan 14 j 07:45	25°☾17'04	0°01'18
max. Earth dist.	432 Jun 29 j 20:13	8°☾37'12	30.98238 AU	min. Earth dist.	440 Jan 14 j 20:44	25°☾16'10	29.06254 AU
retrograde	432 Oct 12 j 18:59	11°☾08'05		direct	440 Apr 02 j 23:10	23°☾51'53	
opposition	432 Dec 29 j 07:37	9°☾44'33	0°-30'-25				
min. Earth dist.	432 Dec 29 j 14:26	9°☾44'04	28.98827 AU	conjunction	440 Jul 18 j 15:29	26°☾23'49	0°03'27
direct	433 Mar 18 j 09:33	8°☾19'24		minimum elong	440 Jul 18 j 15:29	26°☾23'49	0°03'27
				behind sun begin	440 Jul 18 j 08:57	26°☾23'14	
conjunction	433 Jul 02 j 16:59	10°☾51'04	0°-26'-22	behind sun end	440 Jul 18 j 22:01	26°☾24'24	
minimum elong	433 Jul 02 j 16:59	10°☾51'04	0°26'23	max. Earth dist.	440 Jul 18 j 00:23	26°☾22'26	31.06644 AU
max. Earth dist.	433 Jul 02 j 09:10	10°☾50'21	30.99420 AU	retrograde	440 Oct 30 j 14:21	28°☾52'50	
retrograde	433 Oct 15 j 06:21	13°☾21'08		opposition	441 Jan 15 j 17:59	27°☾29'57	0°05'51
opposition	433 Dec 31 j 17:48	11°☾57'43	0°-25'-58	min. Earth dist.	441 Jan 16 j 06:39	27°☾29'04	29.07044 AU
min. Earth dist.	434 Jan 01 j 00:27	11°☾57'14	29.00033 AU	direct	441 Apr 05 j 11:49	26°☾04'43	
direct	434 Mar 20 j 21:39	10°☾32'34					
				conjunction	441 Jul 21 j 04:30	28°☾36'39	0°07'42
conjunction	434 Jul 05 j 06:39	13°☾04'19	0°-22'-11	minimum elong	441 Jul 21 j 04:30	28°☾36'39	0°07'42
minimum elong	434 Jul 05 j 06:39	13°☾04'19	0°22'13	behind sun begin	441 Jul 20 j 22:34	28°☾36'07	
max. Earth dist.	434 Jul 04 j 21:35	13°☾03'29	31.00645 AU	behind sun end	441 Jul 21 j 10:25	28°☾37'10	
retrograde	434 Oct 17 j 17:16	15°☾34'15		max. Earth dist.	441 Jul 20 j 13:06	28°☾35'14	31.07425 AU
opposition	435 Jan 03 j 04:01	14°☾10'57	0°-21'-28		441 Aug 29 j 18:15	0°☾	
min. Earth dist.	435 Jan 03 j 12:16	14°☾10'22	29.01270 AU	retrograde	441 Nov 01 j 23:05	1°☾05'29	
direct	435 Mar 23 j 07:33	12°☾45'49			442 Jan 07 j 19:14	30°☾	
				opposition	442 Jan 18 j 04:20	29°☾42'39	0°10'24
conjunction	435 Jul 07 j 20:24	15°☾17'38	0°-17'-58	min. Earth dist.	442 Jan 18 j 18:36	29°☾41'39	29.07843 AU
minimum elong	435 Jul 07 j 20:24	15°☾17'38	0°17'58	direct	442 Apr 07 j 22:57	28°☾17'22	
max. Earth dist.	435 Jul 07 j 11:05	15°☾16'46	31.01867 AU		442 Jul 01 j 04:50	0°☾	
retrograde	435 Oct 20 j 04:21	17°☾47'26					
opposition	436 Jan 05 j 14:22	16°☾24'15	0°-16'-56	conjunction	442 Jul 23 j 17:27	0°☾49'17	0°11'55
min. Earth dist.	436 Jan 05 j 23:06	16°☾23'38	29.02453 AU	minimum elong	442 Jul 23 j 17:27	0°☾49'17	0°11'55
direct	436 Mar 24 j 20:46	14°☾59'08		behind sun begin	442 Jul 23 j 12:59	0°☾48'53	
				behind sun end	442 Jul 23 j 21:56	0°☾49'41	
conjunction	436 Jul 09 j 09:50	17°☾30'59	0°-13'-44	max. Earth dist.	442 Jul 23 j 01:28	0°☾47'48	31.08250 AU
minimum elong	436 Jul 09 j 09:50	17°☾30'59	0°13'45	retrograde	442 Nov 04 j 09:41	3°☾17'56	
behind sun begin	436 Jul 09 j 06:29	17°☾30'42		opposition	443 Jan 20 j 14:28	1°☾55'09	0°14'56
behind sun end	436 Jul 09 j 13:10	17°☾31'17		min. Earth dist.	443 Jan 21 j 04:24	1°☾54'11	29.08695 AU
max. Earth dist.	436 Jul 08 j 22:26	17°☾29'57	31.03008 AU	direct	443 Apr 10 j 11:04	0°☾29'50	
retrograde	436 Oct 21 j 16:56	20°☾00'40					
opposition	437 Jan 07 j 00:45	18°☾37'33	0°-12'-23	conjunction	443 Jul 26 j 06:19	3°☾01'45	0°16'08
min. Earth dist.	437 Jan 07 j 10:27	18°☾36'52	29.03558 AU	minimum elong	443 Jul 26 j 06:19	3°☾01'45	0°16'09
direct	437 Mar 27 j 08:51	17°☾12'26		max. Earth dist.	443 Jul 25 j 13:34	3°☾00'12	31.09142 AU
				retrograde	443 Nov 06 j 19:27	5°☾30'16	
conjunction	437 Jul 11 j 23:28	19°☾44'21	0°-9'-28	opposition	444 Jan 23 j 00:52	4°☾07'32	0°19'26
minimum elong	437 Jul 11 j 23:28	19°☾44'21	0°09'29	min. Earth dist.	444 Jan 23 j 15:47	4°☾06'29	29.09655 AU
behind sun begin	437 Jul 11 j 18:01	19°☾43'52		direct	444 Apr 11 j 20:38	2°☾42'12	
behind sun end	437 Jul 12 j 04:55	19°☾44'50					
max. Earth dist.	437 Jul 11 j 12:05	19°☾43'18	31.04055 AU	conjunction	444 Jul 27 j 18:57	5°☾14'06	0°20'20
retrograde	437 Oct 24 j 03:12	22°☾13'52		minimum elong	444 Jul 27 j 18:57	5°☾14'06	0°20'19
opposition	438 Jan 09 j 11:04	20°☾50'50	0°-7'-49	max. Earth dist.	444 Jul 27 j 02:35	5°☾12'35	31.10155 AU
min. Earth dist.	438 Jan 09 j 22:04	20°☾50'04	29.04545 AU	retrograde	444 Nov 08 j 04:51	7°☾42'29	
direct	438 Mar 29 j 21:50	19°☾25'42		opposition	445 Jan 24 j 11:12	6°☾19'49	0°23'54

min. Earth dist.	445 Jan 25 j 02:01	6°Ω18'47	29.10715 AU	min. Earth dist.	453 Feb 11 j 19:23	23°Ω55'52	29.18302 AU
direct	445 Apr 14 j 09:51	4°Ω54'30		direct	453 May 02 j 10:02	22°Ω31'58	
conjunction	445 Jul 30 j 07:35	7°Ω26'25	0°24'30	conjunction	453 Aug 17 j 10:49	25°Ω03'47	0°55'59
minimum elong	445 Jul 30 j 07:35	7°Ω26'25	0°24'30	minimum elong	453 Aug 17 j 10:49	25°Ω03'47	0°55'59
max. Earth dist.	445 Jul 29 j 13:48	7°Ω24'46	31.11269 AU	max. Earth dist.	453 Aug 16 j 12:51	25°Ω01'44	31.18532 AU
retrograde	445 Nov 10 j 16:18	9°Ω54'41		retrograde	453 Nov 28 j 03:21	27°Ω31'05	
opposition	446 Jan 26 j 21:24	8°Ω32'05	0°28'20	opposition	454 Feb 13 j 09:35	26°Ω08'53	1°01'43
min. Earth dist.	446 Jan 27 j 12:40	8°Ω31'01	29.11877 AU	min. Earth dist.	454 Feb 14 j 05:56	26°Ω07'28	29.18853 AU
direct	446 Apr 16 j 20:41	7°Ω06'47		direct	454 May 04 j 23:11	24°Ω43'33	
conjunction	446 Aug 01 j 20:21	9°Ω38'44	0°28'38	conjunction	454 Aug 19 j 22:39	27°Ω15'19	0°59'36
minimum elong	446 Aug 01 j 20:21	9°Ω38'44	0°28'37	minimum elong	454 Aug 19 j 22:39	27°Ω15'19	0°59'35
max. Earth dist.	446 Aug 01 j 03:07	9°Ω37'08	31.12449 AU	max. Earth dist.	454 Aug 18 j 23:24	27°Ω13'09	31.19079 AU
retrograde	446 Nov 13 j 02:14	12°Ω06'53		retrograde	454 Nov 30 j 14:01	29°Ω42'31	
opposition	447 Jan 29 j 07:50	10°Ω44'23	0°32'44	opposition	455 Feb 15 j 20:10	28°Ω20'19	1°05'31
min. Earth dist.	447 Jan 30 j 00:05	10°Ω43'15	29.13058 AU	min. Earth dist.	455 Feb 16 j 16:39	28°Ω18'53	29.19428 AU
direct	447 Apr 19 j 08:43	9°Ω19'07		direct	455 May 07 j 09:44	26°Ω54'57	
conjunction	447 Aug 04 j 08:50	11°Ω51'04	0°32'43	conjunction	455 Aug 22 j 10:21	29°Ω26'40	1°03'07
minimum elong	447 Aug 04 j 08:49	11°Ω51'04	0°32'44	minimum elong	455 Aug 22 j 10:21	29°Ω26'40	1°03'07
max. Earth dist.	447 Aug 03 j 13:55	11°Ω49'19	31.13621 AU	max. Earth dist.	455 Aug 21 j 12:06	29°Ω24'36	31.19668 AU
retrograde	447 Nov 15 j 14:53	14°Ω19'08			455 Sep 06 j 11:29	0°♊	
opposition	448 Jan 31 j 18:14	12°Ω56'43	0°37'05	retrograde	455 Dec 02 j 22:59	1°♊53'47	
min. Earth dist.	448 Feb 01 j 10:30	12°Ω55'35	29.14213 AU	opposition	456 Feb 18 j 06:52	0°♊31'35	1°09'14
direct	448 Apr 20 j 21:15	11°Ω31'28		min. Earth dist.	456 Feb 19 j 03:51	0°♊30'08	29.20056 AU
conjunction	448 Aug 05 j 21:28	14°Ω03'26	0°36'46		456 Mar 08 j 16:47	30°♊Ω	
minimum elong	448 Aug 05 j 21:28	14°Ω03'26	0°36'45	direct	456 May 08 j 21:33	29°Ω06'14	
max. Earth dist.	448 Aug 05 j 02:51	14°Ω01'43	31.14725 AU		456 Jul 07 j 04:12	0°♊	
	448 Aug 31 j 21:05	15°Ω		conjunction	456 Aug 23 j 21:49	1°♊37'55	1°06'33
retrograde	448 Nov 17 j 01:29	16°Ω31'23		minimum elong	456 Aug 23 j 21:49	1°♊37'55	1°06'32
opposition	449 Feb 02 j 04:50	15°Ω09'02	0°41'22	max. Earth dist.	456 Aug 22 j 22:31	1°♊35'45	31.20348 AU
min. Earth dist.	449 Feb 02 j 22:40	15°Ω07'47	29.15275 AU	retrograde	456 Dec 04 j 10:56	4°♊04'56	
	449 Feb 07 j 14:30	15°♊Ω		opposition	457 Feb 19 j 17:22	2°♊42'47	1°12'51
direct	449 Apr 23 j 10:12	13°Ω43'48		min. Earth dist.	457 Feb 20 j 13:38	2°♊41'23	29.20801 AU
	449 Jul 03 j 19:55	15°Ω		direct	457 May 11 j 09:44	1°♊17'27	
conjunction	449 Aug 08 j 09:51	16°Ω15'46	0°40'45	max. Earth dist.	457 Aug 25 j 11:04	3°♊47'03	31.21136 AU
minimum elong	449 Aug 08 j 09:51	16°Ω15'46	0°40'45	conjunction	457 Aug 26 j 09:21	3°♊49'07	1°09'52
max. Earth dist.	449 Aug 07 j 13:41	16°Ω13'54	31.15729 AU	minimum elong	457 Aug 26 j 09:21	3°♊49'07	1°09'53
retrograde	449 Nov 19 j 13:07	18°Ω43'35		retrograde	457 Dec 06 j 21:13	6°♊16'05	
opposition	450 Feb 04 j 15:20	17°Ω21'17	0°45'35	opposition	458 Feb 22 j 04:09	4°♊53'59	1°16'21
min. Earth dist.	450 Feb 05 j 08:53	17°Ω20'04	29.16212 AU	min. Earth dist.	458 Feb 23 j 01:20	4°♊52'31	29.21637 AU
direct	450 Apr 25 j 23:21	15°Ω56'03		direct	458 May 13 j 22:23	3°♊28'42	
conjunction	450 Aug 10 j 22:23	18°Ω28'00	0°44'40	conjunction	458 Aug 28 j 20:43	6°♊00'21	1°13'06
minimum elong	450 Aug 10 j 22:23	18°Ω28'00	0°44'39	minimum elong	458 Aug 28 j 20:43	6°♊00'21	1°13'06
max. Earth dist.	450 Aug 10 j 01:45	18°Ω26'06	31.16587 AU	max. Earth dist.	458 Aug 27 j 21:40	5°♊58'13	31.22014 AU
retrograde	450 Nov 21 j 22:38	20°Ω55'42		retrograde	458 Dec 09 j 08:37	8°♊27'17	
opposition	451 Feb 07 j 01:57	19°Ω33'27	0°49'44	opposition	459 Feb 24 j 14:44	7°♊05'15	1°19'44
min. Earth dist.	451 Feb 07 j 21:14	19°Ω32'06	29.17015 AU	min. Earth dist.	459 Feb 25 j 11:01	7°♊03'51	29.22538 AU
direct	451 Apr 28 j 10:50	18°Ω08'12		direct	459 May 16 j 10:57	5°♊40'01	
conjunction	451 Aug 13 j 10:43	20°Ω40'07	0°48'31	max. Earth dist.	459 Aug 30 j 09:22	8°♊09'34	31.22918 AU
minimum elong	451 Aug 13 j 10:43	20°Ω40'07	0°48'31	conjunction	459 Aug 31 j 08:08	8°♊11'40	1°16'13
max. Earth dist.	451 Aug 12 j 13:21	20°Ω38'08	31.17330 AU	minimum elong	459 Aug 31 j 08:08	8°♊11'40	1°16'14
retrograde	451 Nov 24 j 09:20	23°Ω07'40		retrograde	459 Dec 11 j 18:35	10°♊38'34	
opposition	452 Feb 09 j 12:32	21°Ω45'27	0°53'49	opposition	460 Feb 27 j 01:41	9°♊16'36	1°23'01
min. Earth dist.	452 Feb 10 j 07:36	21°Ω44'07	29.17698 AU	min. Earth dist.	460 Feb 27 j 23:07	9°♊15'07	29.23450 AU
direct	452 Apr 29 j 23:44	20°Ω20'11		direct	460 May 17 j 22:17	7°♊51'26	
conjunction	452 Aug 14 j 22:45	22°Ω52'02	0°52'17	conjunction	460 Sep 01 j 19:18	10°♊23'05	1°19'14
minimum elong	452 Aug 14 j 22:45	22°Ω52'02	0°52'17	minimum elong	460 Sep 01 j 19:18	10°♊23'05	1°19'14
max. Earth dist.	452 Aug 14 j 00:31	22°Ω49'59	31.17959 AU	max. Earth dist.	460 Aug 31 j 20:22	10°♊20'57	31.23809 AU
retrograde	452 Nov 25 j 18:44	25°Ω19'29		retrograde	460 Dec 13 j 05:42	12°♊49'56	
opposition	453 Feb 10 j 23:10	23°Ω57'16	0°57'48	opposition	461 Feb 28 j 12:32	11°♊28'02	1°26'10

min. Earth dist.	461 Mar 01 j 09:30	11° 11 26'35	29.24303 AU	direct	469 Jun 07 j 09:32	27° 11 31'23	
direct	461 May 20 j 11:20	10° 11 02'55			469 Sep 20 j 19:19	0° 11	
max. Earth dist.	461 Sep 03 j 07:00	12° 11 32'21	31.24607 AU				
				conjunction	469 Sep 21 j 21:05	0° 11 02'24	1°40'40
conjunction	461 Sep 04 j 06:36	12° 11 34'33	1°22'07	minimum elong	469 Sep 21 j 21:05	0° 11 02'24	1°40'40
minimum elong	461 Sep 04 j 06:36	12° 11 34'33	1°22'07	max. Earth dist.	469 Sep 20 j 22:04	0° 11 00'15	31.27977 AU
retrograde	461 Dec 15 j 15:12	15° 11 01'22		retrograde	470 Jan 01 j 22:59	2° 11 28'49	
opposition	462 Mar 02 j 23:25	13° 11 39'31	1°29'12	opposition	470 Mar 20 j 16:18	1° 11 06'53	1°48'27
min. Earth dist.	462 Mar 03 j 21:21	13° 11 38'00	29.25062 AU	min. Earth dist.	470 Mar 21 j 13:28	1° 11 05'26	29.28351 AU
direct	462 May 22 j 21:42	12° 11 14'26			470 May 06 j 11:58	30° 11	
				direct	470 Jun 09 j 23:00	29° 11 41'51	
conjunction	462 Sep 06 j 17:57	14° 11 46'01	1°24'54		470 Jul 13 j 15:37	0° 11	
minimum elong	462 Sep 06 j 17:56	14° 11 46'01	1°24'53	max. Earth dist.	470 Sep 23 j 08:27	2° 11 10'41	31.28515 AU
max. Earth dist.	462 Sep 05 j 18:43	14° 11 43'51	31.25298 AU				
retrograde	462 Dec 17 j 23:36	17° 11 12'47		conjunction	470 Sep 24 j 07:27	2° 11 12'49	1°42'22
opposition	463 Mar 05 j 10:30	15° 11 50'57	1°32'06	minimum elong	470 Sep 24 j 07:26	2° 11 12'49	1°42'22
min. Earth dist.	463 Mar 06 j 08:29	15° 11 49'26	29.25683 AU	retrograde	471 Jan 04 j 08:51	4° 11 39'15	
direct	463 May 25 j 10:38	14° 11 25'54		opposition	471 Mar 23 j 03:39	3° 11 17'21	1°50'11
max. Earth dist.	463 Sep 08 j 04:28	16° 11 55'09	31.25852 AU	min. Earth dist.	471 Mar 24 j 00:59	3° 11 15'53	29.28938 AU
				direct	471 Jun 12 j 09:26	1° 11 52'23	
conjunction	463 Sep 09 j 04:57	16° 11 57'25	1°27'33				
minimum elong	463 Sep 09 j 04:57	16° 11 57'25	1°27'33	conjunction	471 Sep 26 j 17:39	4° 11 23'19	1°43'55
retrograde	463 Dec 20 j 10:02	19° 11 24'09		minimum elong	471 Sep 26 j 17:39	4° 11 23'19	1°43'55
opposition	464 Mar 06 j 21:35	18° 11 02'19	1°34'52	max. Earth dist.	471 Sep 25 j 19:54	4° 11 21'17	31.29125 AU
min. Earth dist.	464 Mar 07 j 19:40	18° 11 00'48	29.26188 AU	retrograde	472 Jan 06 j 17:29	6° 11 49'46	
direct	464 May 26 j 20:35	16° 11 37'15		opposition	472 Mar 24 j 15:03	5° 11 27'54	1°51'45
				min. Earth dist.	472 Mar 25 j 11:55	5° 11 26'29	29.29551 AU
conjunction	464 Sep 10 j 16:05	19° 11 08'43	1°30'04	direct	472 Jun 13 j 21:58	4° 11 03'02	
minimum elong	464 Sep 10 j 16:04	19° 11 08'43	1°30'04	max. Earth dist.	472 Sep 27 j 05:21	6° 11 31'49	31.29735 AU
max. Earth dist.	464 Sep 09 j 16:25	19° 11 06'30	31.26289 AU				
retrograde	464 Dec 21 j 18:47	21° 11 35'22		conjunction	472 Sep 28 j 03:50	6° 11 33'55	1°45'19
opposition	465 Mar 09 j 08:38	20° 11 13'32	1°37'29	minimum elong	472 Sep 28 j 03:50	6° 11 33'55	1°45'19
min. Earth dist.	465 Mar 10 j 07:29	20° 11 11'58	29.26570 AU	retrograde	473 Jan 08 j 04:23	9° 11 00'25	
direct	465 May 29 j 08:25	18° 11 48'28		opposition	473 Mar 27 j 02:23	7° 11 38'36	1°53'10
max. Earth dist.	465 Sep 12 j 02:04	21° 11 17'31	31.26629 AU	min. Earth dist.	473 Mar 27 j 22:55	7° 11 37'12	29.30153 AU
				direct	473 Jun 16 j 07:29	6° 11 13'48	
conjunction	465 Sep 13 j 02:55	21° 11 19'50	1°32'28				
minimum elong	465 Sep 13 j 02:55	21° 11 19'50	1°32'28	conjunction	473 Sep 30 j 14:10	8° 11 44'39	1°46'34
retrograde	465 Dec 24 j 05:59	23° 11 46'26		minimum elong	473 Sep 30 j 14:10	8° 11 44'39	1°46'34
opposition	466 Mar 11 j 19:40	22° 11 24'34	1°39'58	max. Earth dist.	473 Sep 29 j 16:53	8° 11 42'40	31.30294 AU
min. Earth dist.	466 Mar 12 j 17:53	22° 11 23'02	29.26879 AU	retrograde	474 Jan 10 j 13:30	11° 11 11'12	
direct	466 May 31 j 20:40	20° 11 59'28		opposition	474 Mar 29 j 14:02	9° 11 49'25	1°54'25
				min. Earth dist.	474 Mar 30 j 11:05	9° 11 47'59	29.30661 AU
conjunction	466 Sep 15 j 13:44	23° 11 30'45	1°34'43	direct	474 Jun 18 j 19:05	8° 11 24'42	
minimum elong	466 Sep 15 j 13:44	23° 11 30'45	1°34'43	max. Earth dist.	474 Oct 02 j 02:05	10° 11 53'25	31.30747 AU
max. Earth dist.	466 Sep 14 j 13:56	23° 11 28'32	31.26904 AU				
retrograde	466 Dec 26 j 15:26	25° 11 57'17		conjunction	474 Oct 03 j 00:16	10° 11 55'30	1°47'39
opposition	467 Mar 14 j 06:51	24° 11 35'22	1°42'19	minimum elong	474 Oct 03 j 00:16	10° 11 55'30	1°47'39
min. Earth dist.	467 Mar 15 j 05:57	24° 11 33'47	29.27152 AU	retrograde	475 Jan 13 j 01:05	13° 11 22'06	
direct	467 Jun 03 j 08:57	23° 11 10'17		opposition	475 Apr 01 j 01:41	12° 11 00'20	1°55'31
max. Earth dist.	467 Sep 17 j 00:05	25° 11 39'12	31.27190 AU	min. Earth dist.	475 Apr 01 j 21:52	11° 11 58'57	29.31055 AU
				direct	475 Jun 21 j 06:24	10° 11 35'40	
conjunction	467 Sep 18 j 00:16	25° 11 41'27	1°36'51				
minimum elong	467 Sep 18 j 00:16	25° 11 41'27	1°36'51	conjunction	475 Oct 05 j 10:33	13° 11 06'26	1°48'36
retrograde	467 Dec 29 j 02:23	28° 11 07'56		minimum elong	475 Oct 05 j 10:33	13° 11 06'26	1°48'36
opposition	468 Mar 15 j 17:58	26° 11 46'00	1°44'31	max. Earth dist.	475 Oct 04 j 13:21	13° 11 04'26	31.31063 AU
min. Earth dist.	468 Mar 16 j 15:42	26° 11 44'30	29.27464 AU	retrograde	476 Jan 15 j 11:13	15° 11 33'04	
direct	468 Jun 04 j 21:29	25° 11 20'53		opposition	476 Apr 02 j 13:33	14° 11 11'17	1°56'26
max. Earth dist.	468 Sep 18 j 11:11	27° 11 49'47	31.27529 AU	min. Earth dist.	476 Apr 03 j 10:37	14° 11 09'51	29.31304 AU
				direct	476 Jun 22 j 17:39	12° 11 46'41	
conjunction	468 Sep 19 j 10:41	27° 11 51'59	1°38'50				
minimum elong	468 Sep 19 j 10:40	27° 11 51'59	1°38'49	conjunction	476 Oct 06 j 20:33	15° 11 17'22	1°49'23
	468 Nov 27 j 14:12	0° 11		minimum elong	476 Oct 06 j 20:33	15° 11 17'22	1°49'23
retrograde	468 Dec 30 j 12:22	0° 11 18'25		max. Earth dist.	476 Oct 05 j 22:53	15° 11 15'20	31.31243 AU
	469 Feb 02 j 03:29	30° 11		retrograde	477 Jan 16 j 22:33	17° 11 44'02	
opposition	469 Mar 18 j 05:14	28° 11 56'28	1°46'33	opposition	477 Apr 05 j 01:15	16° 11 22'15	1°57'11
min. Earth dist.	469 Mar 19 j 03:33	28° 11 54'56	29.27860 AU	min. Earth dist.	477 Apr 05 j 21:09	16° 11 20'54	29.31404 AU

direct	477 Jun 25 j 05:51	14° 2 57'40		direct	485 Jul 13 j 04:06	2° 0 22'48	
max. Earth dist.	477 Oct 08 j 09:16	17° 2 26'16	31.31266 AU				
conjunction	477 Oct 09 j 06:39	17° 2 28'16	1°50'01	conjunction	485 Oct 26 j 11:34	4° 0 52'42	1°49'22
minimum elong	477 Oct 09 j 06:39	17° 2 28'16	1°50'01	minimum elong	485 Oct 26 j 11:34	4° 0 52'42	1°49'22
retrograde	478 Jan 19 j 09:14	19° 2 54'58		max. Earth dist.	485 Oct 25 j 19:10	4° 0 51'10	31.31092 AU
opposition	478 Apr 07 j 13:03	18° 2 33'08	1°57'47	retrograde	486 Feb 05 j 18:16	7° 0 19'48	
min. Earth dist.	478 Apr 08 j 09:47	18° 2 31'44	29.31371 AU	opposition	486 Apr 25 j 12:44	5° 0 57'47	1°56'26
direct	478 Jun 27 j 18:23	17° 2 08'35		min. Earth dist.	486 Apr 26 j 03:47	5° 0 56'46	29.31221 AU
				direct	486 Jul 15 j 15:42	4° 0 33'34	
conjunction	478 Oct 11 j 16:36	19° 2 39'05	1°50'29	conjunction	486 Oct 28 j 21:06	7° 0 03'25	1°48'34
minimum elong	478 Oct 11 j 16:36	19° 2 39'05	1°50'29	minimum elong	486 Oct 28 j 21:06	7° 0 03'25	1°48'34
max. Earth dist.	478 Oct 10 j 19:44	19° 2 37'08	31.31189 AU	max. Earth dist.	486 Oct 28 j 05:13	7° 0 01'55	31.31087 AU
retrograde	479 Jan 21 j 20:24	22° 2 05'47		retrograde	487 Feb 08 j 05:49	9° 0 30'37	
opposition	479 Apr 10 j 00:53	20° 2 43'55	1°58'12	opposition	487 Apr 28 j 01:11	8° 0 08'34	1°55'30
min. Earth dist.	479 Apr 10 j 20:32	20° 2 42'35	29.31246 AU	min. Earth dist.	487 Apr 28 j 16:43	8° 0 07'31	29.31170 AU
direct	479 Jun 30 j 08:34	19° 2 19'22		direct	487 Jul 18 j 03:22	6° 0 44'25	
max. Earth dist.	479 Oct 13 j 05:25	21° 2 47'49	31.31041 AU				
conjunction	479 Oct 14 j 02:15	21° 2 49'46	1°50'48	conjunction	487 Oct 31 j 06:33	9° 0 14'11	1°47'37
minimum elong	479 Oct 14 j 02:15	21° 2 49'46	1°50'48	minimum elong	487 Oct 31 j 06:33	9° 0 14'11	1°47'37
retrograde	480 Jan 24 j 06:07	24° 2 16'29		max. Earth dist.	487 Oct 30 j 15:28	9° 0 12'46	31.30980 AU
opposition	480 Apr 11 j 12:49	22° 2 54'34	1°58'28	retrograde	488 Feb 10 j 17:21	11° 0 41'28	
min. Earth dist.	480 Apr 12 j 08:28	22° 2 53'13	29.31104 AU	opposition	488 Apr 29 j 13:32	10° 0 19'24	1°54'24
direct	480 Jul 01 j 19:36	21° 2 30'01		min. Earth dist.	488 Apr 30 j 03:56	10° 0 18'25	29.30983 AU
				direct	488 Jul 19 j 16:41	8° 0 55'18	
conjunction	480 Oct 15 j 12:00	24° 2 00'18	1°50'58	conjunction	488 Nov 01 j 16:03	11° 0 24'59	1°46'31
minimum elong	480 Oct 15 j 12:00	24° 2 00'18	1°50'57	minimum elong	488 Nov 01 j 16:03	11° 0 24'59	1°46'31
max. Earth dist.	480 Oct 14 j 16:41	23° 2 58'30	31.30906 AU	max. Earth dist.	488 Nov 01 j 00:41	11° 0 23'33	31.30720 AU
retrograde	481 Jan 25 j 14:23	26° 2 27'02		retrograde	489 Feb 12 j 04:13	13° 0 52'22	
opposition	481 Apr 14 j 00:33	25° 2 05'04	1°58'33	opposition	489 May 02 j 01:49	12° 0 30'15	1°53'08
min. Earth dist.	481 Apr 14 j 19:24	25° 2 03'47	29.30985 AU	min. Earth dist.	489 May 02 j 16:24	12° 0 29'16	29.30654 AU
direct	481 Jul 04 j 09:01	23° 2 40'33		direct	489 Jul 22 j 03:32	11° 0 06'11	
				max. Earth dist.	489 Nov 03 j 11:36	13° 0 34'28	31.30315 AU
conjunction	481 Oct 17 j 21:34	26° 2 10'45	1°50'58	conjunction	489 Nov 04 j 01:39	13° 0 35'47	1°45'16
minimum elong	481 Oct 17 j 21:35	26° 2 10'45	1°50'58	minimum elong	489 Nov 04 j 01:39	13° 0 35'47	1°45'16
max. Earth dist.	481 Oct 17 j 01:55	26° 2 08'54	31.30826 AU		489 Dec 13 j 15:04	15° 0	
retrograde	482 Jan 28 j 01:13	28° 2 37'31		retrograde	490 Feb 14 j 13:40	16° 0 30'14	
opposition	482 Apr 16 j 12:28	27° 2 15'31	1°58'28		490 Apr 22 j 19:29	15° 0 11	
min. Earth dist.	482 Apr 17 j 06:17	27° 2 14'18	29.30952 AU	opposition	490 May 04 j 14:20	14° 0 41'03	1°51'43
direct	482 Jul 06 j 19:33	25° 2 51'02		min. Earth dist.	490 May 05 j 04:18	14° 0 40'07	29.30163 AU
				direct	490 Jul 24 j 17:29	13° 0 17'01	
conjunction	482 Oct 20 j 07:10	28° 2 21'09	1°50'48		490 Oct 16 j 12:52	15° 0	
minimum elong	482 Oct 20 j 07:10	28° 2 21'09	1°50'48				
max. Earth dist.	482 Oct 19 j 13:21	28° 2 19'28	31.30830 AU	conjunction	490 Nov 06 j 10:55	15° 0 46'31	1°43'52
	482 Dec 07 j 06:38	0° 0		minimum elong	490 Nov 06 j 10:55	15° 0 46'31	1°43'52
retrograde	483 Jan 30 j 09:53	0° 0 47'59		max. Earth dist.	490 Nov 05 j 20:19	15° 0 45'09	31.29770 AU
	483 Mar 28 j 11:27	30° 0 11		retrograde	491 Feb 17 j 01:09	18° 0 14'02	
opposition	483 Apr 19 j 00:33	29° 2 25'58	1°58'13	opposition	491 May 07 j 02:50	16° 0 51'48	1°50'09
min. Earth dist.	483 Apr 19 j 18:11	29° 2 24'46	29.30987 AU	min. Earth dist.	491 May 07 j 15:57	16° 0 50'54	29.29567 AU
direct	483 Jul 09 j 07:39	28° 2 01'33		direct	491 Jul 27 j 04:51	15° 0 27'46	
	483 Oct 08 j 13:59	0° 0					
conjunction	483 Oct 22 j 16:36	0° 0 31'35	1°50'29	conjunction	491 Nov 08 j 20:19	17° 0 57'09	1°42'19
minimum elong	483 Oct 22 j 16:37	0° 0 31'35	1°50'30	minimum elong	491 Nov 08 j 20:19	17° 0 57'09	1°42'19
max. Earth dist.	483 Oct 21 j 22:37	0° 0 29'53	31.30910 AU	max. Earth dist.	491 Nov 08 j 07:26	17° 0 55'57	31.29134 AU
retrograde	484 Feb 01 j 20:46	2° 0 58'30		retrograde	492 Feb 19 j 09:53	20° 0 24'45	
opposition	484 Apr 20 j 12:29	1° 0 36'29	1°57'47	opposition	492 May 08 j 15:19	19° 0 02'25	1°48'25
min. Earth dist.	484 Apr 21 j 04:38	1° 0 35'23	29.31088 AU	min. Earth dist.	492 May 09 j 04:20	19° 0 01'33	29.28902 AU
direct	484 Jul 10 j 17:56	0° 0 12'08		direct	492 Jul 28 j 17:24	17° 0 38'24	
max. Earth dist.	484 Oct 23 j 09:36	2° 0 40'33	31.31012 AU				
conjunction	484 Oct 24 j 02:07	2° 0 42'06	1°50'00	conjunction	492 Nov 10 j 05:25	20° 0 07'41	1°40'37
minimum elong	484 Oct 24 j 02:07	2° 0 42'06	1°50'01	minimum elong	492 Nov 10 j 05:25	20° 0 07'41	1°40'37
retrograde	485 Feb 03 j 06:43	5° 0 09'06		max. Earth dist.	492 Nov 09 j 16:31	20° 0 06'28	31.28476 AU
opposition	485 Apr 23 j 00:40	3° 0 47'05	1°57'12	retrograde	493 Feb 20 j 20:35	22° 0 35'21	
min. Earth dist.	485 Apr 23 j 17:16	3° 0 45'57	29.31181 AU	opposition	493 May 11 j 03:42	21° 0 12'57	1°46'32
				min. Earth dist.	493 May 11 j 15:01	21° 0 12'11	29.28252 AU

direct	493 Jul 31 j 04:11	19°M48'56		direct	501 Aug 18 j 00:20	7°♂16'22	
conjunction	493 Nov 12 j 14:36	22°M18'08	1°38'47	conjunction	501 Nov 29 j 15:57	9°♂45'06	1°19'12
minimum elong	493 Nov 12 j 14:36	22°M18'08	1°38'47	minimum elong	501 Nov 29 j 15:58	9°♂45'06	1°19'12
max. Earth dist.	493 Nov 12 j 03:21	22°M17'04	31.27844 AU	max. Earth dist.	501 Nov 29 j 10:49	9°♂44'37	31.24215 AU
retrograde	494 Feb 23 j 06:20	24°M45'55		retrograde	502 Mar 13 j 01:32	12°♂13'59	
opposition	494 May 13 j 16:16	23°M23'26	1°44'30	opposition	502 May 31 j 21:56	10°♂51'15	1°23'02
min. Earth dist.	494 May 14 j 03:33	23°M22'41	29.27659 AU	min. Earth dist.	502 Jun 01 j 01:41	10°♂51'00	29.23895 AU
direct	494 Aug 02 j 14:21	21°M59'28		direct	502 Aug 20 j 11:50	9°♂27'44	
conjunction	494 Nov 14 j 23:42	24°M28'34	1°36'49	conjunction	502 Dec 02 j 01:22	11°♂56'23	1°16'12
minimum elong	494 Nov 14 j 23:42	24°M28'34	1°36'48	minimum elong	502 Dec 02 j 01:23	11°♂56'23	1°16'12
max. Earth dist.	494 Nov 14 j 13:12	24°M27'34	31.27312 AU	max. Earth dist.	502 Dec 01 j 21:22	11°♂56'01	31.23428 AU
retrograde	495 Feb 25 j 17:53	26°M56'28		retrograde	503 Mar 15 j 11:49	14°♂25'23	
opposition	495 May 16 j 04:46	25°M33'58	1°42'19	opposition	503 Jun 03 j 10:58	13°♂02'34	1°19'46
min. Earth dist.	495 May 16 j 13:49	25°M33'21	29.27168 AU	min. Earth dist.	503 Jun 03 j 15:03	13°♂02'17	29.23049 AU
direct	495 Aug 05 j 01:37	24°M10'01		direct	503 Aug 22 j 22:44	11°♂39'04	
conjunction	495 Nov 17 j 08:43	26°M39'04	1°34'42	conjunction	503 Dec 04 j 10:34	14°♂07'36	1°13'05
minimum elong	495 Nov 17 j 08:43	26°M39'04	1°34'42	minimum elong	503 Dec 04 j 10:35	14°♂07'36	1°13'05
max. Earth dist.	495 Nov 16 j 23:09	26°M38'10	31.26867 AU	max. Earth dist.	503 Dec 04 j 07:10	14°♂07'16	31.22548 AU
retrograde	496 Feb 28 j 05:50	29°M07'07		retrograde	504 Mar 16 j 23:08	16°♂36'42	
opposition	496 May 17 j 17:24	27°M44'34	1°39'59	opposition	504 Jun 04 j 23:47	15°♂13'47	1°16'23
min. Earth dist.	496 May 18 j 02:24	27°M43'58	29.26764 AU	min. Earth dist.	504 Jun 05 j 02:01	15°♂13'38	29.22120 AU
direct	496 Aug 06 j 12:27	26°M20'43		direct	504 Aug 24 j 10:37	13°♂50'15	
conjunction	496 Nov 18 j 17:52	28°M49'42	1°32'26	conjunction	504 Dec 05 j 19:48	16°♂18'42	1°09'53
minimum elong	496 Nov 18 j 17:53	28°M49'42	1°32'26	minimum elong	504 Dec 05 j 19:48	16°♂18'42	1°09'52
max. Earth dist.	496 Nov 18 j 09:44	28°M48'56	31.26503 AU	max. Earth dist.	504 Dec 05 j 16:57	16°♂18'25	31.21598 AU
retrograde	496 Dec 21 j 00:05	0°♂		retrograde	505 Mar 19 j 10:34	18°♂47'55	
opposition	497 Mar 01 j 17:49	1°♂17'53		opposition	505 Jun 07 j 12:39	17°♂24'53	1°12'54
min. Earth dist.	497 May 17 j 08:30	30°R		min. Earth dist.	505 Jun 07 j 14:56	17°♂24'43	29.21173 AU
direct	497 May 20 j 05:48	29°M55'20	1°37'30	direct	505 Aug 26 j 21:01	16°♂01'21	
conjunction	497 May 20 j 13:11	29°M54'50	29.26404 AU	conjunction	505 Dec 08 j 05:03	18°♂29'41	1°06'34
direct	497 Aug 09 j 00:34	28°M31'32		minimum elong	505 Dec 08 j 05:03	18°♂29'41	1°06'34
	497 Oct 24 j 15:21	0°♂		max. Earth dist.	505 Dec 08 j 03:53	18°♂29'35	31.20675 AU
conjunction	497 Nov 21 j 02:59	1°♂00'30	1°30'03	retrograde	506 Mar 21 j 22:05	20°♂59'01	
minimum elong	497 Nov 21 j 02:59	1°♂00'30	1°30'03	opposition	506 Jun 10 j 01:33	19°♂35'53	1°09'18
max. Earth dist.	497 Nov 20 j 19:01	0°♂59'45	31.26158 AU	min. Earth dist.	506 Jun 10 j 01:56	19°♂35'52	29.20270 AU
retrograde	498 Mar 04 j 05:31	3°♂28'50		direct	506 Aug 29 j 08:47	18°♂12'22	
opposition	498 May 22 j 18:35	2°♂06'15	1°34'52	conjunction	506 Dec 10 j 14:05	20°♂40'37	1°03'09
min. Earth dist.	498 May 23 j 01:38	2°♂05'47	29.26061 AU	minimum elong	506 Dec 10 j 14:05	20°♂40'37	1°03'09
direct	498 Aug 11 j 10:46	0°♂42'33		max. Earth dist.	506 Dec 10 j 13:15	20°♂40'33	31.19818 AU
conjunction	498 Nov 23 j 12:09	3°♂11'28	1°27'31	retrograde	507 Mar 24 j 10:28	23°♂10'05	
minimum elong	498 Nov 23 j 12:09	3°♂11'28	1°27'31	opposition	507 Jun 12 j 14:34	21°♂46'53	1°05'37
max. Earth dist.	498 Nov 23 j 06:02	3°♂10'53	31.25803 AU	min. Earth dist.	507 Jun 12 j 14:17	21°♂46'54	29.19469 AU
retrograde	499 Mar 06 j 16:17	5°♂39'57		direct	507 Aug 31 j 19:08	20°♂23'23	
opposition	499 May 25 j 07:25	4°♂17'21	1°32'06	conjunction	507 Dec 12 j 23:26	22°♂51'35	0°59'39
min. Earth dist.	499 May 25 j 13:32	4°♂16'56	29.25669 AU	minimum elong	507 Dec 12 j 23:26	22°♂51'35	0°59'39
direct	499 Aug 14 j 00:36	2°♂53'43		max. Earth dist.	507 Dec 13 j 00:45	22°♂51'43	31.19069 AU
conjunction	499 Nov 25 j 21:20	5°♂22'35	1°24'52	retrograde	508 Mar 25 j 21:54	25°♂21'11	
minimum elong	499 Nov 25 j 21:20	5°♂22'35	1°24'52	opposition	508 Jun 14 j 03:21	23°♂57'56	1°01'49
max. Earth dist.	499 Nov 25 j 14:51	5°♂21'58	31.25384 AU	min. Earth dist.	508 Jun 14 j 01:48	23°♂58'02	29.18759 AU
retrograde	500 Mar 08 j 05:14	7°♂51'12		direct	508 Sep 02 j 08:11	22°♂34'29	
opposition	500 May 26 j 20:08	6°♂28'35	1°29'12	conjunction	508 Dec 14 j 08:37	25°♂02'39	0°56'03
min. Earth dist.	500 May 27 j 01:20	6°♂28'13	29.25209 AU	minimum elong	508 Dec 14 j 08:37	25°♂02'39	0°56'03
direct	500 Aug 15 j 11:56	5°♂05'00		max. Earth dist.	508 Dec 14 j 09:54	25°♂02'47	31.18412 AU
conjunction	500 Nov 27 j 06:44	7°♂33'49	1°22'06	retrograde	509 Mar 28 j 11:28	27°♂32'25	
minimum elong	500 Nov 27 j 06:44	7°♂33'49	1°22'06	opposition	509 Jun 16 j 16:17	26°♂09'08	0°57'55
max. Earth dist.	500 Nov 27 j 01:47	7°♂33'21	31.24863 AU	min. Earth dist.	509 Jun 16 j 13:25	26°♂09'20	29.18138 AU
retrograde	501 Mar 10 j 14:34	10°♂02'34		direct	509 Sep 04 j 19:01	24°♂45'45	
opposition	501 May 29 j 09:03	8°♂39'54	1°26'11	conjunction	509 Dec 16 j 17:55	27°♂13'54	0°52'22
min. Earth dist.	501 May 29 j 14:15	8°♂39'33	29.24617 AU				

minimum elong	509 Dec 16 j 17:55	27° \mathcal{A} 13'54	0°52'22	minimum elong	518 Jan 02 j 23:09	14° \mathcal{B} 49'55	0°20'33
max. Earth dist.	509 Dec 16 j 21:10	27° \mathcal{A} 14'12	31.17814 AU	max. Earth dist.	518 Jan 03 j 07:14	14° \mathcal{B} 50'41	31.10919 AU
retrograde	510 Mar 30 j 21:43	29° \mathcal{A} 43'50		retrograde	518 Apr 18 j 01:06	17° \mathcal{B} 21'10	
opposition	510 Jun 19 j 05:23	28° \mathcal{A} 20'32	0°53'57	opposition	518 Jul 07 j 14:33	15° \mathcal{B} 57'21	0°19'41
min. Earth dist.	510 Jun 19 j 02:05	28° \mathcal{A} 20'45	29.17551 AU	min. Earth dist.	518 Jul 07 j 05:06	15° \mathcal{B} 57'59	29.10353 AU
direct	510 Sep 07 j 07:03	26° \mathcal{A} 57'13		direct	518 Sep 25 j 00:21	14° \mathcal{B} 34'13	
conjunction	510 Dec 19 j 03:16	29° \mathcal{A} 25'21	0°48'36	conjunction	519 Jan 05 j 09:02	17° \mathcal{B} 02'03	0°16'23
minimum elong	510 Dec 19 j 03:16	29° \mathcal{A} 25'21	0°48'37	minimum elong	519 Jan 05 j 09:02	17° \mathcal{B} 02'03	0°16'23
max. Earth dist.	510 Dec 19 j 06:47	29° \mathcal{A} 25'40	31.17249 AU	max. Earth dist.	519 Jan 05 j 18:57	17° \mathcal{B} 02'59	31.09786 AU
	511 Jan 03 j 11:49	0° \mathcal{B}		retrograde	519 Apr 20 j 11:53	19° \mathcal{B} 33'25	
retrograde	511 Apr 03 j 10:00	1° \mathcal{B} 55'28		opposition	519 Jul 10 j 03:36	18° \mathcal{B} 09'31	0°15'13
opposition	511 Jun 21 j 18:24	0° \mathcal{B} 32'09	0°49'53	min. Earth dist.	519 Jul 09 j 17:40	18° \mathcal{B} 10'11	29.09262 AU
min. Earth dist.	511 Jun 21 j 13:27	0° \mathcal{B} 32'29	29.16979 AU	direct	519 Sep 27 j 12:34	16° \mathcal{B} 46'23	
	511 Jul 12 j 02:26	30° \mathcal{R} \mathcal{A}					
direct	511 Sep 09 j 18:17	29° \mathcal{A} 08'55		conjunction	520 Jan 07 j 18:51	19° \mathcal{B} 14'10	0°12'11
	511 Nov 05 j 00:58	0° \mathcal{B}		minimum elong	520 Jan 07 j 18:51	19° \mathcal{B} 14'10	0°12'11
conjunction	511 Dec 21 j 12:45	1° \mathcal{B} 37'01	0°44'46	behind sun begin	520 Jan 07 j 14:28	19° \mathcal{B} 13'46	
minimum elong	511 Dec 21 j 12:46	1° \mathcal{B} 37'01	0°44'46	behind sun end	520 Jan 07 j 23:13	19° \mathcal{B} 14'34	
max. Earth dist.	511 Dec 21 j 17:29	1° \mathcal{B} 37'28	31.16652 AU	max. Earth dist.	520 Jan 08 j 05:10	19° \mathcal{B} 15'08	31.08750 AU
retrograde	512 Apr 03 j 21:22	4° \mathcal{B} 07'21		retrograde	520 Apr 22 j 01:03	21° \mathcal{B} 45'40	
opposition	512 Jun 23 j 07:36	2° \mathcal{B} 44'00	0°45'44	opposition	520 Jul 11 j 16:33	20° \mathcal{B} 21'41	0°10'42
min. Earth dist.	512 Jun 23 j 02:59	2° \mathcal{B} 44'19	29.16350 AU	min. Earth dist.	520 Jul 11 j 04:51	20° \mathcal{B} 22'29	29.08274 AU
direct	512 Sep 11 j 05:00	1° \mathcal{B} 20'50		direct	520 Sep 29 j 00:52	18° \mathcal{B} 58'34	
conjunction	512 Dec 22 j 22:23	3° \mathcal{B} 48'56	0°40'52	conjunction	521 Jan 09 j 04:44	21° \mathcal{B} 26'20	0°07'59
minimum elong	512 Dec 22 j 22:23	3° \mathcal{B} 48'56	0°40'51	minimum elong	521 Jan 09 j 04:44	21° \mathcal{B} 26'20	0°07'59
max. Earth dist.	512 Dec 23 j 03:44	3° \mathcal{B} 49'26	31.15987 AU	behind sun begin	521 Jan 08 j 22:58	21° \mathcal{B} 25'49	
retrograde	513 Apr 06 j 09:21	6° \mathcal{B} 19'26		behind sun end	521 Jan 09 j 10:29	21° \mathcal{B} 26'52	
opposition	513 Jun 25 j 20:36	4° \mathcal{B} 56'04	0°41'32	max. Earth dist.	521 Jan 09 j 16:19	21° \mathcal{B} 27'25	31.07799 AU
min. Earth dist.	513 Jun 25 j 14:17	4° \mathcal{B} 56'29	29.15625 AU	retrograde	521 Apr 24 j 12:54	23° \mathcal{B} 58'00	
direct	513 Sep 13 j 16:32	3° \mathcal{B} 32'57		opposition	521 Jul 14 j 05:37	22° \mathcal{B} 33'57	0°06'11
conjunction	513 Dec 25 j 08:06	6° \mathcal{B} 01'01	0°36'54	min. Earth dist.	521 Jul 13 j 17:56	22° \mathcal{B} 34'44	29.07375 AU
minimum elong	513 Dec 25 j 08:06	6° \mathcal{B} 01'01	0°36'54	direct	521 Oct 01 j 12:13	21° \mathcal{B} 10'51	
max. Earth dist.	513 Dec 25 j 13:36	6° \mathcal{B} 01'32	31.15199 AU	conjunction	522 Jan 11 j 14:44	23° \mathcal{B} 38'36	0°03'46
retrograde	514 Apr 08 j 21:37	8° \mathcal{B} 31'43		minimum elong	522 Jan 11 j 14:44	23° \mathcal{B} 38'36	0°03'46
opposition	514 Jun 28 j 09:59	7° \mathcal{B} 08'17	0°37'15	behind sun begin	522 Jan 11 j 08:23	23° \mathcal{B} 38'01	
min. Earth dist.	514 Jun 28 j 04:00	7° \mathcal{B} 08'41	29.14777 AU	behind sun end	522 Jan 11 j 21:04	23° \mathcal{B} 39'10	
direct	514 Sep 16 j 02:25	5° \mathcal{B} 45'12		max. Earth dist.	522 Jan 12 j 03:23	23° \mathcal{B} 39'47	31.06956 AU
conjunction	514 Dec 27 j 17:53	8° \mathcal{B} 13'14	0°32'52	retrograde	522 Apr 27 j 00:36	26° \mathcal{B} 10'25	
minimum elong	514 Dec 27 j 17:53	8° \mathcal{B} 13'14	0°32'52	opposition	522 Jul 16 j 18:39	24° \mathcal{B} 46'20	0°01'39
max. Earth dist.	514 Dec 28 j 00:40	8° \mathcal{B} 13'53	31.14286 AU	min. Earth dist.	522 Jul 16 j 04:58	24° \mathcal{B} 47'16	29.06563 AU
retrograde	515 Apr 11 j 09:44	10° \mathcal{B} 44'05		direct	522 Oct 03 j 23:47	23° \mathcal{B} 23'16	
opposition	515 Jun 30 j 23:12	9° \mathcal{B} 20'35	0°32'56	desc. node	522 Nov 26 j 16:10	24° \mathcal{B} 10'42	
min. Earth dist.	515 Jun 30 j 15:51	9° \mathcal{B} 21'05	29.13782 AU	conjunction	523 Jan 14 j 00:43	25° \mathcal{B} 51'00	0°00'-34
direct	515 Sep 18 j 13:42	7° \mathcal{B} 57'30		minimum elong	523 Jan 14 j 00:42	25° \mathcal{B} 51'00	0°00'35
conjunction	515 Dec 30 j 03:41	10° \mathcal{B} 25'30	0°28'48	behind sun begin	523 Jan 13 j 18:18	25° \mathcal{B} 50'26	
minimum elong	515 Dec 30 j 03:41	10° \mathcal{B} 25'30	0°28'49	behind sun end	523 Jan 14 j 07:05	25° \mathcal{B} 51'35	
max. Earth dist.	515 Dec 30 j 10:08	10° \mathcal{B} 26'06	31.13233 AU	max. Earth dist.	523 Jan 14 j 13:45	25° \mathcal{B} 52'14	31.06168 AU
retrograde	516 Apr 12 j 22:52	12° \mathcal{B} 56'29		retrograde	523 Apr 29 j 12:31	28° \mathcal{B} 23'00	
opposition	516 Jul 02 j 12:17	11° \mathcal{B} 32'54	0°28'33	opposition	523 Jul 19 j 07:51	26° \mathcal{B} 58'52	0°-2'-53
min. Earth dist.	516 Jul 02 j 04:57	11° \mathcal{B} 33'23	29.12680 AU	min. Earth dist.	523 Jul 18 j 18:22	26° \mathcal{B} 59'47	29.05800 AU
direct	516 Sep 20 j 00:11	10° \mathcal{B} 09'48		direct	523 Oct 06 j 09:35	25° \mathcal{B} 35'51	
conjunction	516 Dec 31 j 13:34	12° \mathcal{B} 37'45	0°24'42	conjunction	524 Jan 16 j 11:01	28° \mathcal{B} 03'35	0°-4'-52
minimum elong	516 Dec 31 j 13:34	12° \mathcal{B} 37'45	0°24'42	minimum elong	524 Jan 16 j 11:01	28° \mathcal{B} 03'35	0°04'53
max. Earth dist.	516 Dec 31 j 21:46	12° \mathcal{B} 38'31	31.12090 AU	behind sun begin	524 Jan 16 j 04:46	28° \mathcal{B} 03'01	
retrograde	517 Apr 15 j 11:18	15° \mathcal{B} 08'51		behind sun end	524 Jan 16 j 17:16	28° \mathcal{B} 04'09	
opposition	517 Jul 05 j 01:25	13° \mathcal{B} 45'09	0°24'08	max. Earth dist.	524 Jan 17 j 01:34	28° \mathcal{B} 04'58	31.05412 AU
min. Earth dist.	517 Jul 04 j 17:08	13° \mathcal{B} 45'43	29.11505 AU		524 Mar 14 j 17:30	0° \approx	
direct	517 Sep 22 j 13:25	12° \mathcal{B} 22'03		retrograde	524 May 01 j 00:43	0° \approx 35'45	
conjunction	518 Jan 02 j 23:09	14° \mathcal{B} 49'55	0°20'33		524 Jun 19 j 07:00	30° \mathcal{R} \mathcal{B}	
				opposition	524 Jul 20 j 20:44	29° \mathcal{B} 11'35	0°-7'-26
				min. Earth dist.	524 Jul 20 j 05:52	29° \mathcal{B} 12'36	29.05031 AU
				direct	524 Oct 07 j 20:38	27° \mathcal{B} 48'35	

	525 Jan	10 j 16:48	0°		max. Earth dist.	532 Feb	03 j 18:09	15°	30.97003 AU
					retrograde	532 May	19 j 08:32	18°	
conjunction	525 Jan	17 j 21:18	0°	0°-9'-6	min. Earth dist.	532 Aug	07 j 10:57	16°	28.96529 AU
minimum elong	525 Jan	17 j 21:18	0°	0°09'07	opposition	532 Aug	08 j 05:05	16°	0°-42'-54
behind sun begin	525 Jan	17 j 15:49	0°		direct	532 Oct	25 j 16:10	15°	
behind sun end	525 Jan	18 j 02:47	0°						
max. Earth dist.	525 Jan	18 j 11:32	0°	31.04625 AU	conjunction	533 Feb	04 j 11:00	18°	0°-42'-5
retrograde	525 May	03 j 14:27	2°		minimum elong	533 Feb	04 j 11:00	18°	0°42'05
opposition	525 Jul	23 j 09:57	1°	0°-11'-58	max. Earth dist.	533 Feb	05 j 06:43	18°	30.96017 AU
min. Earth dist.	525 Jul	22 j 19:11	1°	29.04225 AU	retrograde	533 May	21 j 20:48	20°	
direct	525 Oct	10 j 06:37	0°		opposition	533 Aug	10 j 17:49	19°	0°-47'-7
					min. Earth dist.	533 Aug	09 j 22:04	19°	28.95606 AU
					direct	533 Oct	28 j 03:21	17°	
conjunction	526 Jan	20 j 07:46	2°	0°-13'-19					
minimum elong	526 Jan	20 j 07:46	2°	0°13'20					
behind sun begin	526 Jan	20 j 04:00	2°		conjunction	534 Feb	06 j 21:45	20°	0°-45'-59
behind sun end	526 Jan	20 j 11:32	2°		minimum elong	534 Feb	06 j 21:45	20°	0°46'00
max. Earth dist.	526 Jan	20 j 23:35	2°	31.03770 AU	max. Earth dist.	534 Feb	07 j 17:20	20°	30.95158 AU
retrograde	526 May	06 j 03:12	5°		retrograde	534 May	24 j 09:52	22°	
opposition	526 Jul	25 j 23:09	3°	0°-16'-30	min. Earth dist.	534 Aug	12 j 10:54	21°	28.94822 AU
min. Earth dist.	526 Jul	25 j 07:43	3°	29.03317 AU	opposition	534 Aug	13 j 06:44	21°	0°-51'-16
direct	526 Oct	12 j 18:47	2°		direct	534 Oct	30 j 13:12	19°	
conjunction	527 Jan	22 j 18:21	4°	0°-17'-32	conjunction	535 Feb	09 j 08:57	22°	0°-49'-50
minimum elong	527 Jan	22 j 18:21	4°	0°17'33	minimum elong	535 Feb	09 j 08:56	22°	0°49'51
max. Earth dist.	527 Jan	23 j 09:29	4°	31.02810 AU	max. Earth dist.	535 Feb	10 j 06:19	22°	30.94423 AU
retrograde	527 May	08 j 17:41	7°		retrograde	535 May	26 j 22:10	25°	
opposition	527 Jul	28 j 12:15	5°	0°-21'00	opposition	535 Aug	15 j 19:21	23°	0°-55'-21
min. Earth dist.	527 Jul	27 j 20:19	5°	29.02303 AU	min. Earth dist.	535 Aug	14 j 22:43	23°	28.94135 AU
direct	527 Oct	15 j 05:07	4°		direct	535 Nov	02 j 00:15	22°	
conjunction	528 Jan	25 j 05:09	6°	0°-21'-43	conjunction	536 Feb	11 j 20:05	24°	0°-53'-37
minimum elong	528 Jan	25 j 05:09	6°	0°21'44	minimum elong	536 Feb	11 j 20:05	24°	0°53'38
max. Earth dist.	528 Jan	25 j 21:25	6°	31.01723 AU	max. Earth dist.	536 Feb	12 j 16:57	24°	30.93781 AU
retrograde	528 May	10 j 05:50	9°		retrograde	536 May	28 j 12:43	27°	
min. Earth dist.	528 Jul	29 j 09:34	8°	29.01157 AU	min. Earth dist.	536 Aug	16 j 10:56	25°	28.93530 AU
opposition	528 Jul	30 j 01:24	8°	0°-25'-28	opposition	536 Aug	17 j 08:06	25°	0°-59'-21
direct	528 Oct	16 j 17:33	6°		direct	536 Nov	03 j 09:32	24°	
conjunction	529 Jan	26 j 15:46	9°	0°-25'-53	conjunction	537 Feb	13 j 07:25	26°	0°-57'-19
minimum elong	529 Jan	26 j 15:46	9°	0°25'54	minimum elong	537 Feb	13 j 07:25	26°	0°57'20
max. Earth dist.	529 Jan	27 j 07:57	9°	31.00541 AU	max. Earth dist.	537 Feb	14 j 05:35	26°	30.93178 AU
retrograde	529 May	12 j 20:12	11°		retrograde	537 May	31 j 01:39	29°	
opposition	529 Aug	01 j 14:23	10°	0°-29'-54	opposition	537 Aug	19 j 20:55	28°	-1°-3'-16
min. Earth dist.	529 Jul	31 j 21:21	10°	28.99946 AU	min. Earth dist.	537 Aug	18 j 23:52	28°	28.92935 AU
direct	529 Oct	19 j 06:07	8°		direct	537 Nov	05 j 21:29	26°	
conjunction	530 Jan	29 j 02:30	11°	0°-30'00	conjunction	538 Feb	15 j 18:57	29°	-1°00'-56
minimum elong	530 Jan	29 j 02:30	11°	0°30'02	minimum elong	538 Feb	15 j 18:57	29°	1°00'58
max. Earth dist.	530 Jan	29 j 19:33	11°	30.99309 AU	max. Earth dist.	538 Feb	16 j 16:52	29°	30.92582 AU
retrograde	530 May	15 j 08:33	13°			538 Mar	10 j 13:25	0°	
min. Earth dist.	530 Aug	03 j 10:49	12°	28.98729 AU	retrograde	538 Jun	02 j 17:28	1°	
opposition	530 Aug	04 j 03:27	12°	0°-34'-17	min. Earth dist.	538 Aug	21 j 11:46	0°	28.92323 AU
direct	530 Oct	21 j 17:53	11°		opposition	538 Aug	22 j 09:40	0°	-1°-7'-5
						538 Sep	02 j 13:02	30°	
conjunction	531 Jan	31 j 13:14	13°	0°-34'-5	direct	538 Nov	08 j 09:43	28°	
minimum elong	531 Jan	31 j 13:14	13°	0°34'06		539 Jan	10 j 10:23	0°	
max. Earth dist.	531 Feb	01 j 07:11	13°	30.98120 AU					
	531 Mar	12 j 05:29	15°		conjunction	539 Feb	18 j 06:41	1°	-1°-4'-28
retrograde	531 May	17 j 20:39	16°		minimum elong	539 Feb	18 j 06:40	1°	1°04'29
	531 Jul	27 j 10:57	15°		max. Earth dist.	539 Feb	19 j 04:56	1°	30.91918 AU
opposition	531 Aug	06 j 16:17	14°	0°-38'-37	retrograde	539 Jun	05 j 06:21	3°	
min. Earth dist.	531 Aug	05 j 21:54	14°	28.97576 AU	opposition	539 Aug	24 j 22:33	2°	-1°-10'-48
direct	531 Oct	24 j 06:03	13°		min. Earth dist.	539 Aug	24 j 01:37	2°	28.91621 AU
	532 Jan	12 j 14:02	15°		direct	539 Nov	10 j 21:13	1°	
conjunction	532 Feb	03 j 00:03	15°	0°-38'-6	conjunction	540 Feb	20 j 18:37	3°	-1°-7'-54
minimum elong	532 Feb	03 j 00:03	15°	0°38'07	minimum elong	540 Feb	20 j 18:37	3°	1°07'55

max. Earth dist.	540 Feb 21 j 17:00	3° ✕ 39'46	30.91167 AU	min. Earth dist.	548 Sep 12 j 16:12	22° ✕ 42'12	28.85406 AU
retrograde	540 Jun 06 j 20:11	6° ✕ 11'56		direct	548 Nov 30 j 03:28	21° ✕ 17'23	
opposition	540 Aug 26 j 11:08	4° ✕ 46'55	-1°-14'-25				
min. Earth dist.	540 Aug 25 j 13:13	4° ✕ 48'26	28.90816 AU	conjunction	549 Mar 12 j 07:54	23° ✕ 45'48	-1°-33'-39
direct	540 Nov 12 j 09:57	3° ✕ 23'53		minimum elong	549 Mar 12 j 07:54	23° ✕ 45'48	1°33'40
				max. Earth dist.	549 Mar 13 j 08:35	23° ✕ 48'08	30.85180 AU
conjunction	541 Feb 22 j 06:28	5° ✕ 51'58	-1°-11'-14	retrograde	549 Jun 27 j 19:16	26° ✕ 20'40	
minimum elong	541 Feb 22 j 06:28	5° ✕ 51'58	1°11'14	min. Earth dist.	549 Sep 15 j 03:27	24° ✕ 56'57	28.85171 AU
max. Earth dist.	541 Feb 23 j 04:19	5° ✕ 54'02	30.90308 AU	opposition	549 Sep 16 j 02:59	24° ✕ 55'19	-1°-41'-22
retrograde	541 Jun 09 j 09:36	8° ✕ 26'19		direct	549 Dec 02 j 15:59	23° ✕ 32'05	
opposition	541 Aug 28 j 23:58	7° ✕ 01'13	-1°-17'-56				
min. Earth dist.	541 Aug 28 j 02:56	7° ✕ 02'40	28.89931 AU	conjunction	550 Mar 14 j 20:29	26° ✕ 00'37	-1°-35'-52
direct	541 Nov 14 j 21:18	5° ✕ 38'08		minimum elong	550 Mar 14 j 20:28	26° ✕ 00'37	1°35'53
				max. Earth dist.	550 Mar 15 j 20:38	26° ✕ 02'54	30.84948 AU
conjunction	542 Feb 24 j 18:23	8° ✕ 06'13	-1°-14'-27	retrograde	550 Jun 30 j 09:51	28° ✕ 35'34	
minimum elong	542 Feb 24 j 18:22	8° ✕ 06'13	1°14'28	opposition	550 Sep 18 j 15:21	27° ✕ 10'14	-1°-43'-39
max. Earth dist.	542 Feb 25 j 17:15	8° ✕ 08'23	30.89401 AU	min. Earth dist.	550 Sep 17 j 17:02	27° ✕ 11'47	28.84944 AU
retrograde	542 Jun 11 j 22:05	10° ✕ 40'37		direct	550 Dec 05 j 03:15	25° ✕ 47'02	
opposition	542 Aug 31 j 12:32	9° ✕ 15'26	-1°-21'-19				
min. Earth dist.	542 Aug 30 j 14:30	9° ✕ 16'58	28.89012 AU	conjunction	551 Mar 17 j 09:32	28° ✕ 15'39	-1°-37'-55
direct	542 Nov 17 j 09:57	7° ✕ 52'18		minimum elong	551 Mar 17 j 09:32	28° ✕ 15'39	1°37'56
				max. Earth dist.	551 Mar 18 j 10:10	28° ✕ 17'59	30.84698 AU
conjunction	543 Feb 27 j 06:19	10° ✕ 20'23	-1°-17'-34		551 May 06 j 21:40	0° °	
minimum elong	543 Feb 27 j 06:19	10° ✕ 20'23	1°17'35	retrograde	551 Jul 02 j 23:17	0° ° 50'40	
max. Earth dist.	543 Feb 28 j 04:29	10° ✕ 22'29	30.88488 AU		551 Aug 30 j 20:50	30° ° 38	
retrograde	543 Jun 14 j 10:22	12° ✕ 54'50		min. Earth dist.	551 Sep 20 j 04:37	29° ✕ 26'57	28.84658 AU
min. Earth dist.	543 Sep 02 j 03:29	11° ✕ 31'04	28.88135 AU	opposition	551 Sep 21 j 03:25	29° ✕ 25'21	-1°-45'-46
opposition	543 Sep 03 j 01:00	11° ✕ 29'34	-1°-24'-35	direct	551 Dec 07 j 15:56	28° ✕ 02'09	
direct	543 Nov 19 j 20:08	10° ✕ 06'23			552 Mar 05 j 05:36	0° °	
conjunction	544 Feb 29 j 18:28	12° ✕ 34'29	-1°-20'-34	conjunction	552 Mar 18 j 22:34	0° ° 30'51	-1°-39'-50
minimum elong	544 Feb 29 j 18:28	12° ✕ 34'29	1°20'35	minimum elong	552 Mar 18 j 22:34	0° ° 30'51	1°39'51
max. Earth dist.	544 Mar 01 j 18:04	12° ✕ 36'43	30.87636 AU	max. Earth dist.	552 Mar 19 j 21:47	0° ° 33'03	30.84363 AU
retrograde	544 Jun 15 j 21:50	15° ✕ 08'59		retrograde	552 Jul 04 j 12:23	3° ° 05'55	
opposition	544 Sep 04 j 13:24	13° ✕ 43'39	-1°-27'-44	opposition	552 Sep 22 j 15:46	1° ° 40'36	-1°-47'-44
min. Earth dist.	544 Sep 03 j 15:17	13° ✕ 45'12	28.87332 AU	min. Earth dist.	552 Sep 21 j 18:04	1° ° 42'07	28.84281 AU
direct	544 Nov 21 j 07:41	12° ✕ 20'26		direct	552 Dec 09 j 02:21	0° ° 17'23	
conjunction	545 Mar 03 j 06:22	14° ✕ 48'33	-1°-23'-26	conjunction	553 Mar 21 j 11:40	2° ° 46'09	-1°-41'-36
minimum elong	545 Mar 03 j 06:22	14° ✕ 48'33	1°23'27	minimum elong	553 Mar 21 j 11:40	2° ° 46'09	1°41'37
max. Earth dist.	545 Mar 04 j 05:20	14° ✕ 50'44	30.86890 AU	max. Earth dist.	553 Mar 22 j 11:37	2° ° 48'25	30.83927 AU
retrograde	545 Jun 18 j 11:58	17° ✕ 23'07		retrograde	553 Jul 07 j 00:34	5° ° 21'14	
min. Earth dist.	545 Sep 06 j 03:18	15° ✕ 59'19	28.86661 AU	min. Earth dist.	553 Sep 24 j 06:20	3° ° 57'25	28.83792 AU
opposition	545 Sep 07 j 01:51	15° ✕ 57'45	-1°-30'-44	opposition	553 Sep 25 j 03:58	3° ° 55'54	-1°-49'-32
direct	545 Nov 23 j 17:21	14° ✕ 34'29		direct	553 Dec 11 j 14:18	2° ° 32'38	
conjunction	546 Mar 05 j 18:37	17° ✕ 02'40	-1°-26'-11	conjunction	554 Mar 24 j 00:50	5° ° 01'27	-1°-43'-13
minimum elong	546 Mar 05 j 18:37	17° ✕ 02'40	1°26'13	minimum elong	554 Mar 24 j 00:50	5° ° 01'27	1°43'14
max. Earth dist.	546 Mar 06 j 18:48	17° ✕ 04'57	30.86274 AU	max. Earth dist.	554 Mar 24 j 23:17	5° ° 03'34	30.83408 AU
retrograde	546 Jun 21 j 00:09	19° ✕ 37'18		retrograde	554 Jul 09 j 14:27	7° ° 36'31	
opposition	546 Sep 09 j 14:11	18° ✕ 11'54	-1°-33'-36	opposition	554 Sep 27 j 16:02	6° ° 11'09	-1°-51'-11
min. Earth dist.	546 Sep 08 j 15:42	18° ✕ 13'28	28.86119 AU	min. Earth dist.	554 Sep 26 j 18:51	6° ° 12'38	28.83252 AU
direct	546 Nov 26 j 05:03	16° ✕ 48'37		direct	554 Dec 14 j 00:27	4° ° 47'48	
conjunction	547 Mar 08 j 06:55	19° ✕ 16'52	-1°-28'-49	conjunction	555 Mar 26 j 14:10	7° ° 16'40	-1°-44'-40
minimum elong	547 Mar 08 j 06:55	19° ✕ 16'52	1°28'50	minimum elong	555 Mar 26 j 14:10	7° ° 16'40	1°44'41
max. Earth dist.	547 Mar 09 j 06:49	19° ✕ 19'07	30.85805 AU	max. Earth dist.	555 Mar 27 j 13:10	7° ° 18'50	30.82843 AU
retrograde	547 Jun 23 j 15:24	21° ✕ 51'34		retrograde	555 Jul 12 j 01:22	9° ° 51'43	
min. Earth dist.	547 Sep 11 j 03:05	20° ✕ 27'48	28.85715 AU	min. Earth dist.	555 Sep 29 j 07:27	8° ° 27'45	28.82685 AU
opposition	547 Sep 12 j 02:29	20° ✕ 26'10	-1°-36'-20	opposition	555 Sep 30 j 04:02	8° ° 26'18	-1°-52'-39
direct	547 Nov 28 j 16:38	19° ✕ 02'54		direct	555 Dec 16 j 12:37	7° ° 02'54	
conjunction	548 Mar 09 j 19:20	21° ✕ 31'14	-1°-31'-18	conjunction	556 Mar 28 j 03:21	9° ° 31'47	-1°-45'-57
minimum elong	548 Mar 09 j 19:19	21° ✕ 31'14	1°31'20	minimum elong	556 Mar 28 j 03:21	9° ° 31'47	1°45'59
max. Earth dist.	548 Mar 10 j 19:45	21° ✕ 33'32	30.85441 AU	max. Earth dist.	556 Mar 29 j 01:29	9° ° 33'52	30.82298 AU
retrograde	548 Jun 25 j 04:07	24° ✕ 06'01		retrograde	556 Jul 13 j 15:17	12° ° 06'48	
opposition	548 Sep 13 j 14:45	22° ✕ 40'38	-1°-38'-56	opposition	556 Oct 01 j 15:50	10° ° 41'21	-1°-53'-56

min. Earth dist.	556 Sep 30 j 18:50	10° Υ 42'50	28.82172 AU	direct	565 Jan 04 j 22:01	27° Υ 17'55	
direct	556 Dec 18 j 00:02	9° Υ 17'51					
conjunction	557 Mar 30 j 16:38	11° Υ 46'49	-1°-47'-5	conjunction	565 Apr 18 j 05:50	29° Υ 47'30	-1°-50'-8
minimum elong	557 Mar 30 j 16:38	11° Υ 46'49	1°47'06	minimum elong	565 Apr 18 j 05:50	29° Υ 47'30	1°50'08
max. Earth dist.	557 Mar 31 j 15:02	11° Υ 48'55	30.81815 AU	max. Earth dist.	565 Apr 19 j 00:40	29° Υ 49'17	30.81529 AU
retrograde	557 Jul 16 j 03:16	14° Υ 21'48		retrograde	565 Apr 23 j 18:54	0° \mathcal{B}	
min. Earth dist.	557 Oct 03 j 07:43	12° Υ 57'43	28.81748 AU	retrograde	565 Aug 03 j 14:52	2° \mathcal{B} 22'15	
opposition	557 Oct 04 j 03:43	12° Υ 56'18	-1°-55'-4	min. Earth dist.	565 Oct 21 j 07:11	0° \mathcal{B} 58'12	28.81637 AU
direct	557 Dec 20 j 10:38	11° Υ 32'45		opposition	565 Oct 22 j 00:37	0° \mathcal{B} 56'58	-1°-57'-35
					565 Nov 27 j 21:53	30° $\mathcal{R}\Upsilon$	
conjunction	558 Apr 02 j 05:56	14° Υ 01'45	-1°-48'-3	direct	566 Jan 07 j 09:07	29° Υ 33'12	
minimum elong	558 Apr 02 j 05:56	14° Υ 01'45	1°48'04		566 Feb 16 j 04:04	0° \mathcal{B}	
max. Earth dist.	558 Apr 03 j 04:18	14° Υ 03'51	30.81457 AU	conjunction	566 Apr 20 j 19:56	2° \mathcal{B} 02'52	-1°-49'-45
retrograde	558 Jul 18 j 17:54	16° Υ 36'42		minimum elong	566 Apr 20 j 19:56	2° \mathcal{B} 02'52	1°49'46
opposition	558 Oct 06 j 15:25	15° Υ 11'12	-1°-56'00	max. Earth dist.	566 Apr 21 j 14:24	2° \mathcal{B} 04'36	30.81467 AU
min. Earth dist.	558 Oct 05 j 18:34	15° Υ 12'40	28.81451 AU	retrograde	566 Aug 06 j 02:22	4° \mathcal{B} 37'32	
direct	558 Dec 23 j 00:02	13° Υ 47'35		opposition	566 Oct 24 j 12:10	3° \mathcal{B} 12'16	-1°-57'-5
				min. Earth dist.	566 Oct 23 j 20:22	3° \mathcal{B} 13'23	28.81538 AU
conjunction	559 Apr 04 j 19:20	16° Υ 16'39	-1°-48'-51	direct	567 Jan 09 j 19:53	1° \mathcal{B} 48'26	
minimum elong	559 Apr 04 j 19:20	16° Υ 16'39	1°48'51				
max. Earth dist.	559 Apr 05 j 17:06	16° Υ 18'42	30.81217 AU	conjunction	567 Apr 23 j 10:05	4° \mathcal{B} 18'10	-1°-49'-12
retrograde	559 Jul 21 j 07:26	18° Υ 51'35		minimum elong	567 Apr 23 j 10:05	4° \mathcal{B} 18'10	1°49'12
min. Earth dist.	559 Oct 08 j 07:23	17° Υ 27'27	28.81287 AU	max. Earth dist.	567 Apr 24 j 03:40	4° \mathcal{B} 19'49	30.81357 AU
opposition	559 Oct 09 j 03:05	17° Υ 26'04	-1°-56'-46	retrograde	567 Aug 08 j 16:03	6° \mathcal{B} 52'44	
direct	559 Dec 25 j 11:40	16° Υ 02'25		opposition	567 Oct 26 j 23:18	5° \mathcal{B} 27'27	-1°-56'-25
				min. Earth dist.	567 Oct 26 j 07:17	5° \mathcal{B} 28'36	28.81411 AU
conjunction	560 Apr 06 j 08:53	18° Υ 31'34	-1°-49'-29	direct	568 Jan 12 j 09:24	4° \mathcal{B} 03'33	
minimum elong	560 Apr 06 j 08:53	18° Υ 31'34	1°49'31				
max. Earth dist.	560 Apr 07 j 07:13	18° Υ 33'40	30.81125 AU	conjunction	568 Apr 25 j 00:05	6° \mathcal{B} 33'22	-1°-48'-30
retrograde	560 Jul 22 j 20:56	21° Υ 06'27		minimum elong	568 Apr 25 j 00:06	6° \mathcal{B} 33'22	1°48'31
opposition	560 Oct 10 j 14:42	19° Υ 40'58	-1°-57'-22	max. Earth dist.	568 Apr 25 j 16:44	6° \mathcal{B} 34'55	30.81231 AU
min. Earth dist.	560 Oct 09 j 18:14	19° Υ 42'25	28.81253 AU	retrograde	568 Aug 10 j 04:31	9° \mathcal{B} 07'49	
direct	560 Dec 27 j 00:39	18° Υ 17'19		opposition	568 Oct 28 j 10:38	7° \mathcal{B} 42'33	-1°-55'-34
				min. Earth dist.	568 Oct 27 j 20:08	7° \mathcal{B} 43'34	28.81308 AU
conjunction	561 Apr 08 j 22:13	20° Υ 46'32	-1°-49'-57	direct	569 Jan 13 j 21:11	6° \mathcal{B} 18'34	
minimum elong	561 Apr 08 j 22:13	20° Υ 46'32	1°49'58				
max. Earth dist.	561 Apr 09 j 19:26	20° Υ 48'32	30.81151 AU	conjunction	569 Apr 27 j 14:04	8° \mathcal{B} 48'26	-1°-47'-38
retrograde	561 Jul 25 j 10:49	23° Υ 21'25		minimum elong	569 Apr 27 j 14:04	8° \mathcal{B} 48'26	1°47'38
min. Earth dist.	561 Oct 12 j 06:58	21° Υ 57'20	28.81332 AU	max. Earth dist.	569 Apr 28 j 06:49	8° \mathcal{B} 50'00	30.81166 AU
opposition	561 Oct 13 j 02:27	21° Υ 55'57	-1°-57'-46	retrograde	569 Aug 12 j 17:47	11° \mathcal{B} 22'48	
direct	561 Dec 29 j 11:18	20° Υ 32'18		opposition	569 Oct 30 j 21:44	9° \mathcal{B} 57'31	-1°-54'-33
				min. Earth dist.	569 Oct 30 j 06:48	9° \mathcal{B} 58'35	28.81276 AU
conjunction	562 Apr 11 j 12:02	23° Υ 01'37	-1°-50'-15	direct	570 Jan 16 j 10:31	8° \mathcal{B} 33'28	
minimum elong	562 Apr 11 j 12:02	23° Υ 01'37	1°50'17				
max. Earth dist.	562 Apr 12 j 10:02	23° Υ 03'41	30.81265 AU	conjunction	570 Apr 30 j 04:05	11° \mathcal{B} 03'25	-1°-46'-36
retrograde	562 Jul 28 j 00:02	25° Υ 36'28		minimum elong	570 Apr 30 j 04:06	11° \mathcal{B} 03'25	1°46'37
opposition	562 Oct 15 j 13:56	24° Υ 11'04	-1°-58'00	max. Earth dist.	570 Apr 30 j 19:26	11° \mathcal{B} 04'51	30.81188 AU
min. Earth dist.	562 Oct 14 j 18:39	24° Υ 12'25	28.81461 AU	retrograde	570 Aug 15 j 07:31	13° \mathcal{B} 37'40	
direct	562 Dec 31 j 23:42	22° Υ 47'24		opposition	570 Nov 02 j 08:47	12° \mathcal{B} 12'25	-1°-53'-22
				min. Earth dist.	570 Nov 01 j 19:01	12° \mathcal{B} 13'23	28.81365 AU
conjunction	563 Apr 14 j 01:51	25° Υ 16'49	-1°-50'-23	direct	571 Jan 18 j 21:49	10° \mathcal{B} 48'18	
minimum elong	563 Apr 14 j 01:51	25° Υ 16'49	1°50'23				
max. Earth dist.	563 Apr 14 j 22:08	25° Υ 18'43	30.81405 AU	conjunction	571 May 02 j 18:19	13° \mathcal{B} 18'19	-1°-45'-24
retrograde	563 Jul 30 j 13:38	27° Υ 51'39		minimum elong	571 May 02 j 18:19	13° \mathcal{B} 18'19	1°45'24
min. Earth dist.	563 Oct 17 j 06:59	26° Υ 27'36	28.81595 AU	max. Earth dist.	571 May 03 j 10:16	13° \mathcal{B} 19'49	30.81344 AU
opposition	563 Oct 18 j 01:33	26° Υ 26'18	-1°-58'-2		571 Jun 21 j 01:25	15° \mathcal{B}	
direct	564 Jan 03 j 10:12	25° Υ 02'37		retrograde	571 Aug 17 j 20:41	15° \mathcal{B} 52'27	
					571 Oct 16 j 01:48	15° $\mathcal{R}\mathcal{B}$	
conjunction	564 Apr 15 j 15:50	27° Υ 32'08	-1°-50'-20	opposition	571 Nov 04 j 19:48	14° \mathcal{B} 27'15	-1°-52'00
minimum elong	564 Apr 15 j 15:50	27° Υ 32'08	1°50'22	min. Earth dist.	571 Nov 04 j 06:04	14° \mathcal{B} 28'13	28.81585 AU
max. Earth dist.	564 Apr 16 j 12:19	27° Υ 34'03	30.81500 AU	direct	572 Jan 21 j 11:05	13° \mathcal{B} 03'06	
	564 Jul 11 j 14:14	0° \mathcal{B}			572 Apr 19 j 10:54	15° \mathcal{B}	
retrograde	564 Aug 01 j 00:51	0° \mathcal{B} 06'56					
	564 Aug 21 j 16:39	30° $\mathcal{R}\Upsilon$		conjunction	572 May 04 j 08:12	15° \mathcal{B} 33'11	-1°-44'-2
opposition	564 Oct 19 j 13:09	28° Υ 41'37	-1°-57'-54	minimum elong	572 May 04 j 08:12	15° \mathcal{B} 33'12	1°44'04
min. Earth dist.	564 Oct 18 j 19:34	28° Υ 42'52	28.81652 AU	max. Earth dist.	572 May 04 j 22:37	15° \mathcal{B} 34'32	30.81648 AU

retrograde	572 Aug 19 j 09:22	18°♄07'14		retrograde	580 Sep 06 j 12:16	6°♄06'36	
opposition	572 Nov 06 j 06:49	16°♄42'05	-1°-50'-27	opposition	580 Nov 23 j 21:49	4°♄41'57	-1°-32'-18
min. Earth dist.	572 Nov 05 j 17:30	16°♄43'01	28.81971 AU	min. Earth dist.	580 Nov 23 j 15:09	4°♄42'25	28.86296 AU
direct	573 Jan 22 j 22:00	15°♄17'55		direct	581 Feb 09 j 21:48	3°♄17'29	
conjunction	573 May 06 j 22:23	17°♄48'05	-1°-42'-31	conjunction	581 May 25 j 17:17	5°♄48'15	-1°-24'-59
minimum elong	573 May 06 j 22:24	17°♄48'05	1°42'32	minimum elong	581 May 25 j 17:17	5°♄48'15	1°25'00
max. Earth dist.	573 May 07 j 13:21	17°♄49'29	30.82108 AU	max. Earth dist.	581 May 25 j 23:31	5°♄48'50	30.86436 AU
retrograde	573 Aug 21 j 20:40	20°♄22'02		retrograde	581 Sep 09 j 00:59	8°♄21'07	
opposition	573 Nov 08 j 17:45	18°♄56'57	-1°-48'-45	opposition	581 Nov 26 j 08:24	6°♄56'29	-1°-29'-23
min. Earth dist.	573 Nov 08 j 05:12	18°♄57'51	28.82492 AU	min. Earth dist.	581 Nov 26 j 02:34	6°♄56'54	28.86721 AU
direct	574 Jan 25 j 09:38	17°♄32'47		direct	582 Feb 12 j 09:20	5°♄31'56	
conjunction	574 May 09 j 12:33	20°♄03'03	-1°-40'-51	conjunction	582 May 28 j 07:41	8°♄02'45	-1°-22'-11
minimum elong	574 May 09 j 12:33	20°♄03'03	1°40'52	minimum elong	582 May 28 j 07:41	8°♄02'45	1°22'12
max. Earth dist.	574 May 10 j 01:58	20°♄04'19	30.82703 AU	max. Earth dist.	582 May 28 j 14:10	8°♄03'21	30.86886 AU
retrograde	574 Aug 24 j 10:49	22°♄36'55		retrograde	582 Sep 11 j 12:25	10°♄35'26	
opposition	574 Nov 11 j 04:38	21°♄11'55	-1°-46'-52	opposition	582 Nov 28 j 18:59	9°♄10'51	-1°-26'-19
min. Earth dist.	574 Nov 10 j 16:06	21°♄12'49	28.83126 AU	min. Earth dist.	582 Nov 28 j 14:09	9°♄11'11	28.87200 AU
direct	575 Jan 27 j 20:10	19°♄47'44		direct	583 Feb 14 j 22:04	7°♄46'14	
conjunction	575 May 12 j 02:54	22°♄18'07	-1°-39'-1	conjunction	583 May 30 j 21:49	10°♄17'06	-1°-19'-15
minimum elong	575 May 12 j 02:54	22°♄18'07	1°39'01	minimum elong	583 May 30 j 21:50	10°♄17'06	1°19'16
max. Earth dist.	575 May 12 j 16:09	22°♄19'21	30.83358 AU	max. Earth dist.	583 May 31 j 02:33	10°♄17'32	30.87422 AU
retrograde	575 Aug 26 j 21:23	24°♄51'53		retrograde	583 Sep 14 j 01:38	12°♄49'36	
opposition	575 Nov 13 j 15:32	23°♄26'59	-1°-44'-49	opposition	583 Dec 01 j 05:25	11°♄25'04	-1°-23'-7
min. Earth dist.	575 Nov 13 j 04:43	23°♄27'45	28.83790 AU	min. Earth dist.	583 Dec 01 j 00:32	11°♄25'25	28.87792 AU
direct	576 Jan 30 j 06:20	22°♄02'48		direct	584 Feb 17 j 09:26	10°♄00'24	
conjunction	576 May 13 j 17:17	24°♄33'16	-1°-37'-2	conjunction	584 Jun 01 j 12:04	12°♄31'19	-1°-16'-13
minimum elong	576 May 13 j 17:17	24°♄33'16	1°37'03	minimum elong	584 Jun 01 j 12:04	12°♄31'20	1°16'14
max. Earth dist.	576 May 14 j 05:22	24°♄34'24	30.84032 AU	max. Earth dist.	584 Jun 01 j 16:51	12°♄31'46	30.88076 AU
retrograde	576 Aug 28 j 10:11	27°♄06'56		retrograde	584 Sep 15 j 11:34	15°♄03'41	
opposition	576 Nov 15 j 02:24	25°♄42'07	-1°-42'-37	opposition	584 Dec 02 j 16:00	13°♄39'13	-1°-19'-48
min. Earth dist.	576 Nov 14 j 15:34	25°♄42'53	28.84438 AU	min. Earth dist.	584 Dec 02 j 12:30	13°♄39'28	28.88515 AU
direct	577 Jan 31 j 19:19	24°♄17'54		direct	585 Feb 18 j 20:06	12°♄14'31	
conjunction	577 May 16 j 07:37	26°♄48'28	-1°-34'-54	conjunction	585 Jun 04 j 02:08	14°♄45'30	-1°-13'-3
minimum elong	577 May 16 j 07:37	26°♄48'28	1°34'54	minimum elong	585 Jun 04 j 02:08	14°♄45'31	1°13'04
max. Earth dist.	577 May 16 j 18:28	26°♄49'29	30.84643 AU	max. Earth dist.	585 Jun 04 j 05:55	14°♄45'52	30.88885 AU
retrograde	577 Aug 30 j 21:59	29°♄22'01		retrograde	585 Sep 17 j 23:40	17°♄17'43	
opposition	577 Nov 17 j 13:28	27°♄57'15	-1°-40'-16	opposition	585 Dec 05 j 02:25	15°♄53'21	-1°-16'-22
min. Earth dist.	577 Nov 17 j 04:34	27°♄57'53	28.85009 AU	min. Earth dist.	585 Dec 04 j 22:34	15°♄53'38	28.89379 AU
direct	578 Feb 03 j 06:17	26°♄33'00		direct	586 Feb 21 j 08:28	14°♄28'39	
conjunction	578 May 18 j 22:13	29°♄03'38	-1°-32'-37	conjunction	586 Jun 06 j 16:24	16°♄59'44	-1°-9'-47
minimum elong	578 May 18 j 22:14	29°♄03'38	1°32'38	minimum elong	586 Jun 06 j 16:25	16°♄59'44	1°09'48
max. Earth dist.	578 May 19 j 08:19	29°♄04'34	30.85179 AU	max. Earth dist.	586 Jun 06 j 19:27	17°♄00'01	30.89809 AU
	578 Jun 13 j 15:24	0°♄		retrograde	586 Sep 20 j 10:47	19°♄31'49	
retrograde	578 Sep 02 j 10:57	1°♄37'01		opposition	586 Dec 07 j 12:54	18°♄07'33	-1°-12'-49
opposition	578 Nov 20 j 00:12	0°♄12'19	-1°-37'-45	min. Earth dist.	586 Dec 07 j 10:44	18°♄07'43	28.90356 AU
min. Earth dist.	578 Nov 19 j 15:26	0°♄12'56	28.85489 AU	direct	587 Feb 23 j 18:23	16°♄42'51	
	578 Nov 27 j 06:09	30°♄					
direct	579 Feb 05 j 19:37	28°♄47'59		conjunction	587 Jun 09 j 06:42	19°♄14'02	-1°-6'-24
	579 Apr 14 j 15:33	0°♄		minimum elong	587 Jun 09 j 06:42	19°♄14'02	1°06'25
				max. Earth dist.	587 Jun 09 j 09:14	19°♄14'16	30.90836 AU
conjunction	579 May 21 j 12:41	1°♄18'41	-1°-30'-12	retrograde	587 Sep 22 j 23:06	21°♄45'59	
minimum elong	579 May 21 j 12:41	1°♄18'41	1°30'13	opposition	587 Dec 09 j 23:20	20°♄21'52	-1°-9'-9
max. Earth dist.	579 May 21 j 20:48	1°♄19'26	30.85626 AU	min. Earth dist.	587 Dec 09 j 21:07	20°♄22'01	28.91391 AU
retrograde	579 Sep 05 j 00:00	3°♄51'54		direct	588 Feb 26 j 06:58	18°♄57'10	
opposition	579 Nov 22 j 11:07	2°♄27'13	-1°-35'-6				
min. Earth dist.	579 Nov 22 j 03:57	2°♄27'44	28.85910 AU	conjunction	588 Jun 10 j 20:46	21°♄28'27	-1°-2'-55
direct	580 Feb 08 j 07:40	1°♄02'49		minimum elong	588 Jun 10 j 20:46	21°♄28'27	1°02'57
				max. Earth dist.	588 Jun 10 j 21:37	21°♄28'32	30.91875 AU
conjunction	580 May 23 j 03:01	3°♄33'34	-1°-27'-39	retrograde	588 Sep 24 j 11:40	24°♄00'18	
minimum elong	580 May 23 j 03:02	3°♄33'34	1°27'41	opposition	588 Dec 11 j 09:55	22°♄36'17	-1°-5'-22
max. Earth dist.	580 May 23 j 11:15	3°♄34'20	30.86032 AU	min. Earth dist.	588 Dec 11 j 09:17	22°♄36'19	28.92423 AU

direct	589 Feb 27 j 18:34	21°II11'35		direct	597 Mar 17 j 21:18	9°☾03'13	
conjunction	589 Jun 13 j 11:10	23°II42'58	0°-59'-21	conjunction	597 Jul 02 j 03:02	11°☾34'49	0°-28'-10
minimum elong	589 Jun 13 j 11:10	23°II42'58	0°59'22	minimum elong	597 Jul 02 j 03:02	11°☾34'49	0°28'11
max. Earth dist.	589 Jun 13 j 11:48	23°II43'01	30.92879 AU	max. Earth dist.	597 Jul 01 j 18:51	11°☾34'04	30.98782 AU
retrograde	589 Sep 26 j 23:47	26°II14'40		retrograde	597 Oct 14 j 17:53	14°☾05'01	
opposition	589 Dec 13 j 20:20	24°II50'45	-1°-1'-30	opposition	597 Dec 31 j 07:05	12°☾41'29	0°-27'-55
min. Earth dist.	589 Dec 13 j 20:31	24°II50'44	28.93374 AU	min. Earth dist.	597 Dec 31 j 14:06	12°☾41'00	28.99273 AU
direct	590 Mar 02 j 08:27	23°II26'03		direct	598 Mar 20 j 08:14	11°☾16'20	
conjunction	590 Jun 16 j 01:28	25°II57'30	0°-55'-41	conjunction	598 Jul 04 j 16:45	13°☾47'59	0°-24'-2
minimum elong	590 Jun 16 j 01:28	25°II57'30	0°55'42	minimum elong	598 Jul 04 j 16:45	13°☾47'59	0°24'04
max. Earth dist.	590 Jun 15 j 23:42	25°II57'20	30.93784 AU	max. Earth dist.	598 Jul 04 j 08:48	13°☾47'15	30.99769 AU
retrograde	590 Sep 29 j 12:45	28°II29'03		retrograde	598 Oct 17 j 04:43	16°☾18'00	
opposition	590 Dec 16 j 06:53	27°II05'12	0°-57'-32	opposition	599 Jan 02 j 17:21	14°☾54'34	0°-23'-28
min. Earth dist.	590 Dec 16 j 08:10	27°II05'07	28.94226 AU	min. Earth dist.	599 Jan 03 j 00:39	14°☾54'03	29.00307 AU
direct	591 Mar 04 j 19:57	25°II40'28		direct	599 Mar 22 j 21:15	13°☾29'24	
conjunction	591 Jun 18 j 15:47	28°II11'59	0°-51'-56	conjunction	599 Jul 07 j 06:08	16°☾01'06	0°-19'-52
minimum elong	591 Jun 18 j 15:47	28°II11'59	0°51'57	minimum elong	599 Jul 07 j 06:08	16°☾01'06	0°19'53
max. Earth dist.	591 Jun 18 j 13:52	28°II11'48	30.94576 AU	max. Earth dist.	599 Jul 06 j 20:33	16°☾00'13	31.00860 AU
	591 Aug 11 j 06:46	0°☾		retrograde	599 Oct 19 j 17:02	18°☾30'59	
retrograde	591 Oct 02 j 00:42	0°☾43'21		opposition	600 Jan 05 j 03:33	17°☾07'39	0°-19'00
	591 Nov 23 j 20:51	30°RII		min. Earth dist.	600 Jan 05 j 11:26	17°☾07'05	29.01444 AU
opposition	591 Dec 18 j 17:23	29°II19'34	0°-53'-30	direct	600 Mar 24 j 08:14	15°☾42'29	
min. Earth dist.	591 Dec 18 j 20:02	29°II19'23	28.94959 AU				
direct	592 Mar 06 j 09:38	27°II54'47		conjunction	600 Jul 08 j 19:43	18°☾14'14	0°-15'-41
	592 Jun 08 j 09:31	0°☾		minimum elong	600 Jul 08 j 19:43	18°☾14'14	0°15'42
conjunction	592 Jun 20 j 05:52	0°☾26'20	0°-48'-7	behind sun begin	600 Jul 08 j 19:06	18°☾14'11	
minimum elong	592 Jun 20 j 05:52	0°☾26'20	0°48'09	behind sun end	600 Jul 08 j 20:21	18°☾14'18	
max. Earth dist.	592 Jun 20 j 01:42	0°☾25'57	30.95280 AU	max. Earth dist.	600 Jul 08 j 10:31	18°☾13'24	31.02017 AU
retrograde	592 Oct 03 j 13:38	2°☾57'30		retrograde	600 Oct 21 j 04:26	20°☾43'59	
opposition	592 Dec 20 j 03:43	1°☾33'46	0°-49'-23				
min. Earth dist.	592 Dec 20 j 06:40	1°☾33'33	28.95628 AU				
direct	593 Mar 08 j 22:02	0°☾08'54					
conjunction	593 Jun 22 j 19:58	2°☾40'29	0°-44'-15				
minimum elong	593 Jun 22 j 19:58	2°☾40'29	0°44'15				
max. Earth dist.	593 Jun 22 j 15:32	2°☾40'04	30.95920 AU				
retrograde	593 Oct 05 j 23:15	5°☾11'27					
opposition	593 Dec 22 j 14:09	3°☾47'45	0°-45'-12				
min. Earth dist.	593 Dec 22 j 18:55	3°☾47'25	28.96248 AU				
direct	594 Mar 11 j 09:52	2°☾22'50					
conjunction	594 Jun 25 j 09:57	4°☾54'24	0°-40'-18				
minimum elong	594 Jun 25 j 09:57	4°☾54'24	0°40'19				
max. Earth dist.	594 Jun 25 j 04:04	4°☾53'51	30.96548 AU				
retrograde	594 Oct 08 j 10:47	7°☾25'09					
opposition	594 Dec 25 j 00:18	6°☾01'30	0°-40'-57				
min. Earth dist.	594 Dec 25 j 04:57	6°☾01'10	28.96878 AU				
direct	595 Mar 13 j 22:21	4°☾36'30					
conjunction	595 Jun 27 j 23:50	7°☾08'05	0°-36'-18				
minimum elong	595 Jun 27 j 23:50	7°☾08'05	0°36'19				
max. Earth dist.	595 Jun 27 j 17:19	7°☾07'29	30.97196 AU				
retrograde	595 Oct 10 j 21:04	9°☾38'39					
opposition	595 Dec 27 j 10:42	8°☾15'01	0°-36'-40				
min. Earth dist.	595 Dec 27 j 16:56	8°☾14'35	28.97568 AU				
direct	596 Mar 15 j 08:12	6°☾49'57					
conjunction	596 Jun 29 j 13:25	9°☾21'32	0°-32'-16				
minimum elong	596 Jun 29 j 13:25	9°☾21'32	0°32'17				
max. Earth dist.	596 Jun 29 j 06:31	9°☾20'54	30.97936 AU				
retrograde	596 Oct 12 j 07:14	11°☾51'55					
opposition	596 Dec 28 j 20:54	10°☾28'20	0°-32'-18				
min. Earth dist.	596 Dec 29 j 02:48	10°☾27'55	28.98353 AU				

opposition	600 Jan 05 j 03:33	17° \mathring{S} 07'39	0°-19'00	direct	606 Apr 07 j 09:49	29° \mathring{S} 00'45	
min. Earth dist.	600 Jan 05 j 11:26	17° \mathring{S} 07'05	29.01444 AU		606 Jun 08 j 10:59	0° \mathring{N}	
direct	600 Mar 24 j 08:14	15° \mathring{S} 42'29		max. Earth dist.	606 Jul 22 j 11:50	1° \mathring{N} 31'11	31.07609 AU
conjunction	600 Jul 08 j 19:43	18° \mathring{S} 14'14	0°-15'-41	conjunction	606 Jul 23 j 03:57	1° \mathring{N} 32'40	0°09'47
minimum elong	600 Jul 08 j 19:43	18° \mathring{S} 14'14	0°15'42	minimum elong	606 Jul 23 j 03:56	1° \mathring{N} 32'40	0°09'47
behind sun begin	600 Jul 08 j 19:06	18° \mathring{S} 14'11		behind sun begin	606 Jul 22 j 22:35	1° \mathring{N} 32'11	
behind sun end	600 Jul 08 j 20:21	18° \mathring{S} 14'18		behind sun end	606 Jul 23 j 09:17	1° \mathring{N} 33'08	
max. Earth dist.	600 Jul 08 j 10:31	18° \mathring{S} 13'24	31.02017 AU	retrograde	606 Nov 03 j 21:10	4° \mathring{N} 01'29	
retrograde	600 Oct 21 j 04:26	20° \mathring{S} 43'59		opposition	607 Jan 20 j 03:43	2° \mathring{N} 38'40	0°12'37
opposition	601 Jan 06 j 13:47	19° \mathring{S} 20'45	0°-14'-30	min. Earth dist.	607 Jan 20 j 17:55	2° \mathring{N} 37'40	29.07982 AU
min. Earth dist.	601 Jan 06 j 22:53	19° \mathring{S} 20'07	29.02602 AU	direct	607 Apr 09 j 20:28	1° \mathring{N} 13'23	
direct	601 Mar 26 j 21:38	17° \mathring{S} 55'37					
conjunction	601 Jul 11 j 09:10	20° \mathring{S} 27'25	0°-11'-28	conjunction	607 Jul 25 j 16:50	3° \mathring{N} 45'17	0°13'58
minimum elong	601 Jul 11 j 09:10	20° \mathring{S} 27'25	0°11'29	minimum elong	607 Jul 25 j 16:50	3° \mathring{N} 45'17	0°13'58
behind sun begin	601 Jul 11 j 04:29	20° \mathring{S} 27'01		behind sun begin	607 Jul 25 j 13:39	3° \mathring{N} 45'00	
behind sun end	601 Jul 11 j 13:51	20° \mathring{S} 27'50		behind sun end	607 Jul 25 j 20:01	3° \mathring{N} 45'34	
max. Earth dist.	601 Jul 10 j 21:54	20° \mathring{S} 26'24	31.03170 AU	max. Earth dist.	607 Jul 25 j 00:57	3° \mathring{N} 43'49	31.08328 AU
retrograde	601 Oct 23 j 17:13	22° \mathring{S} 57'02		retrograde	607 Nov 06 j 06:54	6° \mathring{N} 13'56	
opposition	602 Jan 09 j 00:03	21° \mathring{S} 33'54	0°-9'-59	opposition	608 Jan 22 j 13:59	4° \mathring{N} 51'09	0°17'06
min. Earth dist.	602 Jan 09 j 09:20	21° \mathring{S} 33'15	29.03728 AU	min. Earth dist.	608 Jan 23 j 04:31	4° \mathring{N} 50'07	29.08708 AU
direct	602 Mar 29 j 10:06	20° \mathring{S} 08'46		direct	608 Apr 11 j 09:03	3° \mathring{N} 25'49	
conjunction	602 Jul 13 j 22:48	22° \mathring{S} 40'38	0°-7'-15	conjunction	608 Jul 27 j 05:33	5° \mathring{N} 57'42	0°18'08
minimum elong	602 Jul 13 j 22:48	22° \mathring{S} 40'38	0°07'15	minimum elong	608 Jul 27 j 05:33	5° \mathring{N} 57'42	0°18'08
behind sun begin	602 Jul 13 j 16:46	22° \mathring{S} 40'06		max. Earth dist.	608 Jul 26 j 12:12	5° \mathring{N} 56'05	31.09082 AU
behind sun end	602 Jul 14 j 04:50	22° \mathring{S} 41'10		retrograde	608 Nov 07 j 18:18	8° \mathring{N} 26'12	
max. Earth dist.	602 Jul 13 j 11:18	22° \mathring{S} 39'35	31.04244 AU	opposition	609 Jan 24 j 00:07	7° \mathring{N} 03'26	0°21'33
retrograde	602 Oct 26 j 03:20	25° \mathring{S} 10'06		min. Earth dist.	609 Jan 24 j 14:58	7° \mathring{N} 02'24	29.09513 AU
opposition	603 Jan 11 j 10:27	23° \mathring{S} 47'04	0°-5'-27	direct	609 Apr 13 j 20:00	5° \mathring{N} 38'04	
min. Earth dist.	603 Jan 11 j 21:37	23° \mathring{S} 46'16	29.04756 AU				
direct	603 Mar 31 j 21:58	22° \mathring{S} 21'55		conjunction	609 Jul 29 j 18:21	8° \mathring{N} 09'57	0°22'17
conjunction	603 Jul 16 j 12:14	24° \mathring{S} 53'49	0°-3'-1	minimum elong	609 Jul 29 j 18:21	8° \mathring{N} 09'57	0°22'17
minimum elong	603 Jul 16 j 12:14	24° \mathring{S} 53'49	0°03'02	max. Earth dist.	609 Jul 29 j 01:43	8° \mathring{N} 08'25	31.09927 AU
behind sun begin	603 Jul 16 j 05:40	24° \mathring{S} 53'14		retrograde	609 Nov 10 j 04:52	10° \mathring{N} 38'19	
behind sun end	603 Jul 16 j 18:48	24° \mathring{S} 54'23		opposition	610 Jan 26 j 10:27	9° \mathring{N} 15'36	0°25'57
max. Earth dist.	603 Jul 15 j 23:05	24° \mathring{S} 52'36	31.05227 AU	min. Earth dist.	610 Jan 27 j 02:04	9° \mathring{N} 14'30	29.10412 AU
retrograde	603 Oct 28 j 15:19	27° \mathring{S} 23'07		direct	610 Apr 16 j 09:56	7° \mathring{N} 50'13	
opposition	604 Jan 13 j 20:48	26° \mathring{S} 00'09	0°00'-55				
min. Earth dist.	604 Jan 14 j 07:54	25° \mathring{S} 59'22	29.05683 AU	conjunction	610 Aug 01 j 06:52	10° \mathring{N} 22'06	0°26'23
asc. node	604 Mar 29 j 03:35	24° \mathring{S} 35'17		minimum elong	610 Aug 01 j 06:51	10° \mathring{N} 22'06	0°26'24
direct	604 Apr 02 j 10:30	24° \mathring{S} 34'59		max. Earth dist.	610 Jul 31 j 12:48	10° \mathring{N} 20'26	31.10891 AU
max. Earth dist.	604 Jul 17 j 11:37	27° \mathring{S} 05'38	31.06096 AU	retrograde	610 Nov 12 j 16:40	12° \mathring{N} 50'20	
conjunction	604 Jul 18 j 01:31	27° \mathring{S} 06'54	0°01'20	opposition	611 Jan 28 j 20:40	11° \mathring{N} 27'40	0°30'20
minimum elong	604 Jul 18 j 01:30	27° \mathring{S} 06'54	0°01'20	min. Earth dist.	611 Jan 29 j 11:45	11° \mathring{N} 26'37	29.11443 AU
behind sun begin	604 Jul 17 j 18:54	27° \mathring{S} 06'19		direct	611 Apr 18 j 22:19	10° \mathring{N} 02'18	
behind sun end	604 Jul 18 j 08:05	27° \mathring{S} 07'29					
retrograde	604 Oct 30 j 01:29	29° \mathring{S} 36'04		conjunction	611 Aug 03 j 19:28	12° \mathring{N} 34'12	0°30'28
opposition	605 Jan 15 j 07:14	28° \mathring{S} 13'09	0°03'36	minimum elong	611 Aug 03 j 19:28	12° \mathring{N} 34'12	0°30'27
min. Earth dist.	605 Jan 15 j 20:10	28° \mathring{S} 12'14	29.06512 AU	max. Earth dist.	611 Aug 03 j 01:58	12° \mathring{N} 32'35	31.11976 AU
direct	605 Apr 04 j 20:34	26° \mathring{S} 47'57			611 Nov 03 j 12:51	15° \mathring{N}	
conjunction	605 Jul 20 j 14:47	29° \mathring{S} 19'52	0°05'35	retrograde	611 Nov 15 j 02:48	15° \mathring{N} 02'19	
minimum elong	605 Jul 20 j 14:47	29° \mathring{S} 19'52	0°05'35		611 Nov 26 j 16:52	15° \mathring{R} \mathring{N}	
behind sun begin	605 Jul 20 j 08:28	29° \mathring{S} 19'18		opposition	612 Jan 31 j 07:05	13° \mathring{N} 39'45	0°34'39
behind sun end	605 Jul 20 j 21:07	29° \mathring{S} 20'25		min. Earth dist.	612 Jan 31 j 23:26	13° \mathring{N} 38'36	29.12583 AU
max. Earth dist.	605 Jul 20 j 00:06	29° \mathring{S} 18'31	31.06887 AU	direct	612 Apr 20 j 10:02	12° \mathring{N} 14'25	
	605 Aug 07 j 20:00	0° \mathring{N}					
retrograde	605 Nov 01 j 11:09	1° \mathring{N} 48'51		conjunction	612 Aug 05 j 07:45	14° \mathring{N} 46'19	0°34'29
opposition	606 Jan 17 j 17:22	0° \mathring{N} 26'00	0°08'07	minimum elong	612 Aug 05 j 07:45	14° \mathring{N} 46'19	0°34'29
min. Earth dist.	606 Jan 18 j 06:19	0° \mathring{N} 25'05	29.07260 AU	max. Earth dist.	612 Aug 04 j 13:17	14° \mathring{N} 44'36	31.13160 AU
	606 Feb 02 j 09:11	30° \mathring{R} \mathring{S}			612 Aug 11 j 11:16	15° \mathring{N}	
				retrograde	612 Nov 16 j 15:00	17° \mathring{N} 14'19	
				opposition	613 Feb 01 j 17:21	15° \mathring{N} 51'51	0°38'56
				min. Earth dist.	613 Feb 02 j 09:14	15° \mathring{N} 50'44	29.13782 AU
					613 Mar 06 j 23:20	15° \mathring{R} \mathring{N}	

direct	613 Apr 22 j 22:54	14°♏26'33		retrograde	620 Dec 03 j 23:37	4°♐49'02	
	613 Jun 07 j 21:16	15°♏		opposition	621 Feb 19 j 05:56	3°♐26'52	1°10'31
				min. Earth dist.	621 Feb 20 j 03:09	3°♐25'24	29.20664 AU
conjunction	613 Aug 07 j 20:16	16°♏58'29	0°38'28	direct	621 May 10 j 21:42	2°♐01'33	
minimum elong	613 Aug 07 j 20:16	16°♏58'29	0°38'27				
max. Earth dist.	613 Aug 07 j 01:32	16°♏56'45	31.14352 AU	conjunction	621 Aug 25 j 20:40	4°♐33'12	1°07'42
retrograde	613 Nov 19 j 01:16	19°♏26'24		minimum elong	621 Aug 25 j 20:40	4°♐33'12	1°07'42
opposition	614 Feb 04 j 03:46	18°♏04'00	0°43'09	max. Earth dist.	621 Aug 24 j 21:33	4°♐31'04	31.20927 AU
min. Earth dist.	614 Feb 04 j 21:14	18°♏02'47	29.14971 AU	retrograde	621 Dec 06 j 11:09	7°♐00'13	
direct	614 Apr 25 j 09:26	16°♏38'45		opposition	622 Feb 21 j 16:27	5°♐38'04	1°14'03
				min. Earth dist.	622 Feb 22 j 12:47	5°♐36'39	29.21336 AU
conjunction	614 Aug 10 j 08:41	19°♏10'41	0°42'23	direct	622 May 13 j 11:12	4°♐12'45	
minimum elong	614 Aug 10 j 08:41	19°♏10'41	0°42'23	max. Earth dist.	622 Aug 27 j 09:24	6°♐42'15	31.21631 AU
max. Earth dist.	614 Aug 09 j 13:26	19°♏08'54	31.15509 AU				
retrograde	614 Nov 21 j 10:45	21°♏38'29		conjunction	622 Aug 28 j 08:14	6°♐44'22	1°10'58
opposition	615 Feb 06 j 14:16	20°♏16'11	0°47'18	minimum elong	622 Aug 28 j 08:13	6°♐44'22	1°10'58
min. Earth dist.	615 Feb 07 j 07:35	20°♏14'58	29.16083 AU	retrograde	622 Dec 08 j 21:05	9°♐11'18	
direct	615 Apr 27 j 22:24	18°♏50'56		opposition	623 Feb 24 j 03:17	7°♐49'11	1°17'28
				min. Earth dist.	623 Feb 25 j 00:29	7°♐47'43	29.22102 AU
conjunction	615 Aug 12 j 20:53	21°♏22'52	0°46'14	direct	623 May 15 j 22:18	6°♐23'54	
minimum elong	615 Aug 12 j 20:52	21°♏22'52	0°46'14				
max. Earth dist.	615 Aug 12 j 00:25	21°♏20'58	31.16562 AU	conjunction	623 Aug 30 j 19:30	8°♐55'29	1°14'07
retrograde	615 Nov 23 j 20:43	23°♏50'34		minimum elong	623 Aug 30 j 19:29	8°♐55'29	1°14'06
opposition	616 Feb 09 j 00:55	22°♏28'19	0°51'23	max. Earth dist.	623 Aug 29 j 20:56	8°♐53'23	31.22447 AU
min. Earth dist.	616 Feb 09 j 19:20	22°♏27'02	29.17095 AU	retrograde	623 Dec 11 j 06:15	11°♐22'21	
direct	616 Apr 29 j 08:28	21°♏03'05		opposition	624 Feb 26 j 13:59	10°♐00'18	1°20'47
				min. Earth dist.	624 Feb 27 j 10:23	9°♐58'54	29.22956 AU
conjunction	616 Aug 14 j 09:13	23°♏34'59	0°50'01	direct	624 May 17 j 11:06	8°♐35'04	
minimum elong	616 Aug 14 j 09:12	23°♏34'59	0°50'01	max. Earth dist.	624 Aug 31 j 07:42	11°♐04'30	31.23334 AU
max. Earth dist.	616 Aug 13 j 12:50	23°♏33'05	31.17508 AU				
retrograde	616 Nov 25 j 06:08	26°♏02'34		conjunction	624 Sep 01 j 06:49	11°♐06'39	1°17'09
opposition	617 Feb 10 j 11:24	24°♏40'21	0°55'24	minimum elong	624 Sep 01 j 06:49	11°♐06'39	1°17'10
min. Earth dist.	617 Feb 11 j 06:24	24°♏39'02	29.17974 AU	retrograde	624 Dec 12 j 16:13	13°♐33'29	
direct	617 May 01 j 20:34	23°♏15'07		opposition	625 Feb 28 j 00:38	12°♐11'30	1°23'58
				min. Earth dist.	625 Feb 28 j 21:37	12°♐10'03	29.23879 AU
conjunction	617 Aug 16 j 21:22	25°♏46'59	0°53'44	direct	625 May 19 j 20:41	10°♐46'19	
minimum elong	617 Aug 16 j 21:22	25°♏46'59	0°53'44				
max. Earth dist.	617 Aug 15 j 23:17	25°♏44'56	31.18325 AU	conjunction	625 Sep 03 j 18:13	13°♐17'54	1°20'05
retrograde	617 Nov 27 j 17:00	28°♏14'27		minimum elong	625 Sep 03 j 18:12	13°♐17'54	1°20'05
opposition	618 Feb 12 j 22:00	26°♏52'16	0°59'19	max. Earth dist.	625 Sep 02 j 19:47	13°♐15'49	31.24260 AU
min. Earth dist.	618 Feb 13 j 17:26	26°♏50'55	29.18746 AU	retrograde	625 Dec 15 j 01:36	15°♐44'43	
direct	618 May 04 j 07:50	25°♏27'00		opposition	626 Mar 02 j 11:33	14°♐22'49	1°27'02
max. Earth dist.	618 Aug 18 j 12:00	27°♏56'49	31.19035 AU	min. Earth dist.	626 Mar 03 j 08:42	14°♐21'21	29.24789 AU
				direct	626 May 22 j 08:12	12°♐57'42	
conjunction	618 Aug 19 j 09:31	27°♏58'49	0°57'22	max. Earth dist.	626 Sep 05 j 05:46	15°♐27'04	31.25142 AU
minimum elong	618 Aug 19 j 09:30	27°♏58'49	0°57'22				
	618 Oct 21 j 18:32	0°♐		conjunction	626 Sep 06 j 05:20	15°♐29'16	1°22'54
retrograde	618 Nov 30 j 02:31	0°♐26'10		minimum elong	626 Sep 06 j 05:20	15°♐29'16	1°22'55
	619 Jan 09 j 10:00	30°♐♏		retrograde	626 Dec 17 j 12:25	17°♐56'04	
opposition	619 Feb 15 j 08:42	29°♏03'59	1°03'09	opposition	627 Mar 04 j 22:31	16°♐34'13	1°29'59
min. Earth dist.	619 Feb 16 j 05:09	29°♏02'34	29.19412 AU	min. Earth dist.	627 Mar 05 j 19:40	16°♐32'46	29.25647 AU
direct	619 May 06 j 21:10	27°♏38'43		direct	627 May 24 j 18:50	15°♐09'10	
	619 Aug 17 j 04:36	0°♐					
conjunction	619 Aug 21 j 21:21	0°♐10'28	1°00'54	conjunction	627 Sep 08 j 16:38	17°♐40'43	1°25'35
minimum elong	619 Aug 21 j 21:20	0°♐10'28	1°00'54	minimum elong	627 Sep 08 j 16:38	17°♐40'43	1°25'35
max. Earth dist.	619 Aug 20 j 22:21	0°♐08'20	31.19676 AU	max. Earth dist.	627 Sep 07 j 17:56	17°♐38'36	31.25940 AU
retrograde	619 Dec 02 j 13:56	2°♐37'42		retrograde	627 Dec 19 j 21:59	20°♐07'29	
opposition	620 Feb 17 j 19:14	1°♐15'31	1°06'53	opposition	628 Mar 06 j 09:36	18°♐45'41	1°32'47
min. Earth dist.	620 Feb 18 j 15:12	1°♐14'08	29.20042 AU	min. Earth dist.	628 Mar 07 j 07:39	18°♐44'10	29.26391 AU
	620 Apr 13 j 13:03	30°♐♏		direct	628 May 26 j 06:59	17°♐20'41	
direct	620 May 08 j 09:18	29°♏50'13		max. Earth dist.	628 Sep 09 j 03:35	19°♐49'56	31.26617 AU
	620 Jun 02 j 00:56	0°♐					
max. Earth dist.	620 Aug 22 j 10:42	2°♐19'51	31.20287 AU	conjunction	628 Sep 10 j 03:41	19°♐52'11	1°28'09
				minimum elong	628 Sep 10 j 03:40	19°♐52'11	1°28'10
conjunction	620 Aug 23 j 09:05	2°♐21'56	1°04'21	retrograde	628 Dec 21 j 09:30	22°♐18'56	
minimum elong	620 Aug 23 j 09:05	2°♐21'56	1°04'22	opposition	629 Mar 08 j 20:37	20°♐57'09	1°35'28
				min. Earth dist.	629 Mar 09 j 18:08	20°♐55'40	29.27000 AU

direct	629 May 28 j 18:10	19° \mathring{M} 32'10		direct	637 Jun 15 j 19:45	6° \mathring{A} 59'06	
				max. Earth dist.	637 Sep 29 j 04:15	9° \mathring{A} 27'48	31.29516 AU
conjunction	629 Sep 12 j 14:51	22° \mathring{M} 03'38	1°30'36	conjunction	637 Sep 30 j 02:52	9° \mathring{A} 29'55	1°45'08
minimum elong	629 Sep 12 j 14:51	22° \mathring{M} 03'38	1°30'35	minimum elong	637 Sep 30 j 02:52	9° \mathring{A} 29'55	1°45'08
max. Earth dist.	629 Sep 11 j 15:14	22° \mathring{M} 01'26	31.27139 AU	retrograde	638 Jan 10 j 03:01	11° \mathring{A} 56'24	
retrograde	629 Dec 23 j 19:32	24° \mathring{M} 30'21		opposition	638 Mar 29 j 01:49	10° \mathring{A} 34'31	1°52'56
opposition	630 Mar 11 j 07:48	23° \mathring{M} 08'34	1°38'00	min. Earth dist.	638 Mar 29 j 22:07	10° \mathring{A} 33'07	29.29873 AU
min. Earth dist.	630 Mar 12 j 06:38	23° \mathring{M} 07'00	29.27456 AU	direct	638 Jun 18 j 06:09	9° \mathring{A} 09'40	
direct	630 May 31 j 06:47	21° \mathring{M} 43'36					
max. Earth dist.	630 Sep 14 j 01:24	24° \mathring{M} 12'43	31.27531 AU	conjunction	638 Oct 02 j 13:07	11° \mathring{A} 40'27	1°46'18
				minimum elong	638 Oct 02 j 13:07	11° \mathring{A} 40'27	1°46'18
conjunction	630 Sep 15 j 01:48	24° \mathring{M} 15'00	1°32'54	max. Earth dist.	638 Oct 01 j 15:35	11° \mathring{A} 38'26	31.29979 AU
minimum elong	630 Sep 15 j 01:47	24° \mathring{M} 15'00	1°32'55	retrograde	639 Jan 12 j 13:14	14° \mathring{A} 06'59	
retrograde	630 Dec 26 j 07:30	26° \mathring{M} 41'39		opposition	639 Mar 31 j 13:28	12° \mathring{A} 45'07	1°54'05
opposition	631 Mar 13 j 18:59	25° \mathring{M} 19'51	1°40'24	min. Earth dist.	639 Apr 01 j 10:34	12° \mathring{A} 43'41	29.30328 AU
min. Earth dist.	631 Mar 14 j 17:01	25° \mathring{M} 18'20	29.27782 AU	direct	639 Jun 20 j 17:54	11° \mathring{A} 20'21	
direct	631 Jun 02 j 20:53	23° \mathring{M} 54'53					
				conjunction	639 Oct 04 j 23:06	13° \mathring{A} 51'05	1°47'18
conjunction	631 Sep 17 j 12:33	26° \mathring{M} 26'12	1°35'05	minimum elong	639 Oct 04 j 23:06	13° \mathring{A} 51'05	1°47'17
minimum elong	631 Sep 17 j 12:32	26° \mathring{M} 26'12	1°35'04	max. Earth dist.	639 Oct 04 j 01:23	13° \mathring{A} 49'03	31.30409 AU
max. Earth dist.	631 Sep 16 j 12:18	26° \mathring{M} 23'56	31.27794 AU	retrograde	640 Jan 15 j 01:13	16° \mathring{A} 17'39	
retrograde	631 Dec 28 j 17:24	28° \mathring{M} 52'48		opposition	640 Apr 02 j 01:00	14° \mathring{A} 55'49	1°55'05
opposition	632 Mar 15 j 06:14	27° \mathring{M} 30'58	1°42'39	min. Earth dist.	640 Apr 02 j 21:00	14° \mathring{A} 54'27	29.30713 AU
min. Earth dist.	632 Mar 16 j 05:18	27° \mathring{M} 29'23	29.28012 AU	direct	640 Jun 22 j 06:54	13° \mathring{A} 31'07	
direct	632 Jun 04 j 08:49	26° \mathring{M} 05'59		max. Earth dist.	640 Oct 05 j 11:47	15° \mathring{A} 59'48	31.30734 AU
conjunction	632 Sep 18 j 23:14	28° \mathring{M} 37'12	1°37'07	conjunction	640 Oct 06 j 09:16	16° \mathring{A} 01'49	1°48'09
minimum elong	632 Sep 18 j 23:14	28° \mathring{M} 37'12	1°37'07	minimum elong	640 Oct 06 j 09:16	16° \mathring{A} 01'49	1°48'09
max. Earth dist.	632 Sep 17 j 23:16	28° \mathring{M} 34'58	31.27991 AU	retrograde	641 Jan 16 j 11:49	18° \mathring{A} 28'26	
	632 Oct 28 j 02:53	0° \mathring{A}		opposition	641 Apr 04 j 12:39	17° \mathring{A} 06'36	1°55'55
retrograde	632 Dec 30 j 02:19	1° \mathring{A} 03'44		min. Earth dist.	641 Apr 05 j 09:30	17° \mathring{A} 05'11	29.30990 AU
	633 Mar 06 j 15:04	30° \mathring{R} \mathring{M}		direct	641 Jun 24 j 18:10	15° \mathring{A} 41'57	
opposition	633 Mar 17 j 17:15	29° \mathring{M} 41'53	1°44'45				
min. Earth dist.	633 Mar 18 j 15:35	29° \mathring{M} 40'21	29.28182 AU	conjunction	641 Oct 08 j 19:26	18° \mathring{A} 12'36	1°48'51
direct	633 Jun 06 j 22:18	28° \mathring{M} 16'53		minimum elong	641 Oct 08 j 19:26	18° \mathring{A} 12'36	1°48'50
	633 Aug 30 j 14:26	0° \mathring{A}		max. Earth dist.	641 Oct 07 j 22:24	18° \mathring{A} 10'38	31.30948 AU
max. Earth dist.	633 Sep 20 j 09:26	0° \mathring{A} 45'44	31.28155 AU	retrograde	642 Jan 18 j 21:37	20° \mathring{A} 39'15	
				opposition	642 Apr 07 j 00:26	19° \mathring{A} 17'25	1°56'34
conjunction	633 Sep 21 j 09:48	0° \mathring{A} 48'00	1°39'00	min. Earth dist.	642 Apr 07 j 20:27	19° \mathring{A} 16'04	29.31126 AU
minimum elong	633 Sep 21 j 09:48	0° \mathring{A} 48'00	1°39'00	direct	642 Jun 27 j 07:39	17° \mathring{A} 52'50	
retrograde	634 Jan 01 j 12:20	3° \mathring{A} 14'29		max. Earth dist.	642 Oct 10 j 07:48	20° \mathring{A} 21'23	31.31013 AU
opposition	634 Mar 20 j 04:32	1° \mathring{A} 52'35	1°46'42				
min. Earth dist.	634 Mar 21 j 03:00	1° \mathring{A} 51'03	29.28374 AU	conjunction	642 Oct 11 j 05:21	20° \mathring{A} 23'24	1°49'24
direct	634 Jun 09 j 09:28	0° \mathring{A} 27'34		minimum elong	642 Oct 11 j 05:21	20° \mathring{A} 23'24	1°49'24
				retrograde	643 Jan 21 j 08:27	22° \mathring{A} 50'05	
conjunction	634 Sep 23 j 20:11	2° \mathring{A} 58'36	1°40'46	opposition	643 Apr 09 j 12:19	21° \mathring{A} 28'15	1°57'04
minimum elong	634 Sep 23 j 20:10	2° \mathring{A} 58'36	1°40'46	min. Earth dist.	643 Apr 10 j 08:30	21° \mathring{A} 26'52	29.31136 AU
max. Earth dist.	634 Sep 22 j 21:06	2° \mathring{A} 56'26	31.28367 AU	direct	643 Jun 29 j 19:09	20° \mathring{A} 03'41	
retrograde	635 Jan 03 j 20:50	5° \mathring{A} 25'02					
opposition	635 Mar 22 j 15:53	4° \mathring{A} 03'07	1°48'30	conjunction	643 Oct 13 j 15:24	22° \mathring{A} 34'11	1°49'47
min. Earth dist.	635 Mar 23 j 13:54	4° \mathring{A} 01'37	29.28620 AU	minimum elong	643 Oct 13 j 15:24	22° \mathring{A} 34'11	1°49'46
direct	635 Jun 11 j 22:07	2° \mathring{A} 38'07		max. Earth dist.	643 Oct 12 j 18:58	22° \mathring{A} 32'16	31.30958 AU
max. Earth dist.	635 Sep 25 j 06:50	5° \mathring{A} 06'51	31.28663 AU	retrograde	644 Jan 23 j 17:21	25° \mathring{A} 00'53	
				opposition	644 Apr 11 j 00:03	23° \mathring{A} 39'01	1°57'24
conjunction	635 Sep 26 j 06:26	5° \mathring{A} 09'03	1°42'22	min. Earth dist.	644 Apr 11 j 20:04	23° \mathring{A} 37'39	29.31015 AU
minimum elong	635 Sep 26 j 06:26	5° \mathring{A} 09'03	1°42'22	direct	644 Jul 01 j 08:07	22° \mathring{A} 14'28	
retrograde	636 Jan 06 j 06:51	7° \mathring{A} 35'29		max. Earth dist.	644 Oct 14 j 04:02	24° \mathring{A} 42'53	31.30797 AU
opposition	636 Mar 24 j 03:05	6° \mathring{A} 13'34	1°50'08				
min. Earth dist.	636 Mar 25 j 00:21	6° \mathring{A} 12'06	29.28977 AU	conjunction	644 Oct 15 j 01:10	24° \mathring{A} 44'52	1°50'01
direct	636 Jun 13 j 08:27	4° \mathring{A} 48'36		minimum elong	644 Oct 15 j 01:10	24° \mathring{A} 44'52	1°50'02
				retrograde	645 Jan 25 j 03:19	27° \mathring{A} 11'36	
conjunction	636 Sep 27 j 16:46	7° \mathring{A} 19'28	1°43'50	opposition	645 Apr 13 j 11:50	25° \mathring{A} 49'40	1°57'34
minimum elong	636 Sep 27 j 16:46	7° \mathring{A} 19'28	1°43'50	min. Earth dist.	645 Apr 14 j 07:11	25° \mathring{A} 48'22	29.30822 AU
max. Earth dist.	636 Sep 26 j 18:43	7° \mathring{A} 17'25	31.29059 AU	direct	645 Jul 03 j 18:57	24° \mathring{A} 25'08	
retrograde	637 Jan 07 j 15:38	9° \mathring{A} 45'55					
opposition	637 Mar 26 j 14:29	8° \mathring{A} 24'00	1°51'37	conjunction	645 Oct 17 j 10:55	26° \mathring{A} 55'26	1°50'05
min. Earth dist.	637 Mar 27 j 12:00	8° \mathring{A} 22'32	29.29403 AU				

minimum elong	645 Oct 17 j 10:55	26° Δ 55'26	1°50'05	minimum elong	653 Nov 03 j 14:26	14° ℳ 19'31	1°45'04
max. Earth dist.	645 Oct 16 j 15:25	26° Δ 53'36	31.30577 AU	max. Earth dist.	653 Nov 02 j 23:30	14° ℳ 18'07	31.30431 AU
retrograde	646 Jan 27 j 11:40	29° Δ 22'11			653 Nov 21 j 17:25	15° ℳ	
opposition	646 Apr 15 j 23:48	28° Δ 00'13	1°57'35	retrograde	654 Feb 14 j 02:18	16° ℳ 46'54	
min. Earth dist.	646 Apr 16 j 19:15	27° Δ 58'53	29.30596 AU	opposition	654 May 04 j 00:43	15° ℳ 24'48	1°51'34
direct	646 Jul 06 j 06:22	26° Δ 35'41		min. Earth dist.	654 May 04 j 14:17	15° ℳ 23'53	29.30460 AU
					654 May 19 j 12:58	15° ℳ	
conjunction	646 Oct 19 j 20:25	29° Δ 05'52	1°50'01	direct	654 Jul 24 j 03:33	14° ℳ 00'45	
minimum elong	646 Oct 19 j 20:25	29° Δ 05'52	1°50'01		654 Sep 24 j 00:18	15° ℳ	
max. Earth dist.	646 Oct 19 j 00:43	29° Δ 04'01	31.30375 AU	max. Earth dist.	654 Nov 05 j 10:34	16° ℳ 29'06	31.30226 AU
	646 Nov 13 j 10:01	0° ℳ					
retrograde	647 Jan 29 j 22:44	1° ℳ 32'40		conjunction	654 Nov 06 j 00:01	16° ℳ 30'22	1°43'45
opposition	647 Apr 18 j 11:38	0° ℳ 10'38	1°57'25	minimum elong	654 Nov 06 j 00:02	16° ℳ 30'22	1°43'46
min. Earth dist.	647 Apr 19 j 05:22	0° ℳ 09'26	29.30427 AU	retrograde	655 Feb 16 j 11:22	18° ℳ 57'51	
	647 Apr 25 j 00:32	30° ℳ		opposition	655 May 06 j 13:17	17° ℳ 35'42	1°50'04
direct	647 Jul 08 j 16:35	28° Δ 46'07		min. Earth dist.	655 May 07 j 03:06	17° ℳ 34'46	29.30179 AU
	647 Sep 16 j 17:20	0° ℳ		direct	655 Jul 26 j 15:28	16° ℳ 11'42	
max. Earth dist.	647 Oct 21 j 11:39	1° ℳ 14'30	31.30239 AU				
				conjunction	655 Nov 08 j 09:23	18° ℳ 41'13	1°42'17
conjunction	647 Oct 22 j 05:53	1° ℳ 16'13	1°49'47	minimum elong	655 Nov 08 j 09:23	18° ℳ 41'13	1°42'16
minimum elong	647 Oct 22 j 05:53	1° ℳ 16'13	1°49'46	max. Earth dist.	655 Nov 07 j 19:30	18° ℳ 39'54	31.29881 AU
retrograde	648 Feb 01 j 08:39	3° ℳ 43'05		retrograde	656 Feb 18 j 22:53	21° ℳ 08'47	
opposition	648 Apr 19 j 23:40	2° ℳ 21'00	1°57'05	opposition	656 May 08 j 01:42	19° ℳ 46'34	1°48'25
min. Earth dist.	648 Apr 20 j 17:36	2° ℳ 19'47	29.30341 AU	min. Earth dist.	656 May 08 j 14:06	19° ℳ 45'44	29.29751 AU
direct	648 Jul 10 j 04:15	0° ℳ 56'32		direct	656 Jul 28 j 02:31	18° ℳ 22'35	
conjunction	648 Oct 23 j 15:20	3° ℳ 26'33	1°49'23	conjunction	656 Nov 09 j 18:51	20° ℳ 52'00	1°40'40
minimum elong	648 Oct 23 j 15:20	3° ℳ 26'33	1°49'23	minimum elong	656 Nov 09 j 18:51	20° ℳ 52'00	1°40'40
max. Earth dist.	648 Oct 22 j 21:34	3° ℳ 24'52	31.30211 AU	max. Earth dist.	656 Nov 09 j 05:55	20° ℳ 50'47	31.29380 AU
retrograde	649 Feb 02 j 20:28	5° ℳ 53'28		retrograde	657 Feb 20 j 08:44	23° ℳ 19'39	
opposition	649 Apr 22 j 11:28	4° ℳ 31'23	1°56'35	opposition	657 May 10 j 14:14	21° ℳ 57'23	1°46'38
min. Earth dist.	649 Apr 23 j 03:38	4° ℳ 30'17	29.30348 AU	min. Earth dist.	657 May 11 j 03:11	21° ℳ 56'30	29.29190 AU
direct	649 Jul 12 j 16:15	3° ℳ 06'58		direct	657 Jul 30 j 13:57	20° ℳ 33'24	
max. Earth dist.	649 Oct 25 j 07:50	5° ℳ 35'20	31.30260 AU				
				conjunction	657 Nov 12 j 04:10	23° ℳ 02'43	1°38'55
conjunction	649 Oct 26 j 00:48	5° ℳ 36'55	1°48'50	minimum elong	657 Nov 12 j 04:11	23° ℳ 02'43	1°38'54
minimum elong	649 Oct 26 j 00:48	5° ℳ 36'55	1°48'50	max. Earth dist.	657 Nov 11 j 15:45	23° ℳ 01'33	31.28788 AU
retrograde	650 Feb 05 j 07:27	8° ℳ 03'56		retrograde	658 Feb 22 j 20:19	25° ℳ 30'26	
opposition	650 Apr 24 j 23:39	6° ℳ 41'51	1°55'54	opposition	658 May 13 j 02:46	24° ℳ 08'05	1°44'41
min. Earth dist.	650 Apr 25 j 15:58	6° ℳ 40'45	29.30433 AU	min. Earth dist.	658 May 13 j 13:59	24° ℳ 07'19	29.28557 AU
direct	650 Jul 15 j 02:33	5° ℳ 17'31		direct	658 Aug 02 j 01:48	22° ℳ 44'07	
conjunction	650 Oct 28 j 10:08	7° ℳ 47'24	1°48'08	conjunction	658 Nov 14 j 13:18	25° ℳ 13'19	1°37'01
minimum elong	650 Oct 28 j 10:08	7° ℳ 47'24	1°48'08	minimum elong	658 Nov 14 j 13:18	25° ℳ 13'19	1°37'01
max. Earth dist.	650 Oct 27 j 18:27	7° ℳ 45'56	31.30369 AU	max. Earth dist.	658 Nov 14 j 01:35	25° ℳ 12'13	31.28143 AU
retrograde	651 Feb 07 j 17:58	10° ℳ 14'31		retrograde	659 Feb 25 j 07:27	27° ℳ 41'08	
opposition	651 Apr 27 j 11:48	8° ℳ 52'25	1°55'04	opposition	659 May 15 j 15:25	26° ℳ 18'41	1°42'35
min. Earth dist.	651 Apr 28 j 02:46	8° ℳ 51'25	29.30532 AU	min. Earth dist.	659 May 16 j 02:40	26° ℳ 17'56	29.27923 AU
direct	651 Jul 17 j 16:04	7° ℳ 28'11		direct	659 Aug 04 j 12:08	24° ℳ 54'44	
conjunction	651 Oct 30 j 19:32	9° ℳ 58'00	1°47'16	conjunction	659 Nov 16 j 22:32	27° ℳ 23'51	1°34'59
minimum elong	651 Oct 30 j 19:32	9° ℳ 58'00	1°47'16	minimum elong	659 Nov 16 j 22:33	27° ℳ 23'51	1°34'58
max. Earth dist.	651 Oct 30 j 03:42	9° ℳ 56'31	31.30461 AU	max. Earth dist.	659 Nov 16 j 12:22	27° ℳ 22'53	31.27534 AU
retrograde	652 Feb 10 j 06:05	12° ℳ 25'12		retrograde	660 Feb 27 j 18:10	29° ℳ 51'45	
opposition	652 Apr 28 j 23:55	11° ℳ 03'07	1°54'04	opposition	660 May 17 j 03:46	28° ℳ 29'15	1°40'20
min. Earth dist.	652 Apr 29 j 14:42	11° ℳ 02'07	29.30610 AU	min. Earth dist.	660 May 17 j 13:22	28° ℳ 28'36	29.27335 AU
direct	652 Jul 19 j 03:34	9° ℳ 38'57		direct	660 Aug 06 j 01:33	27° ℳ 05'19	
conjunction	652 Nov 01 j 05:06	12° ℳ 08'43	1°46'15	conjunction	660 Nov 18 j 07:41	29° ℳ 34'22	1°32'49
minimum elong	652 Nov 01 j 05:06	12° ℳ 08'43	1°46'15	minimum elong	660 Nov 18 j 07:41	29° ℳ 34'22	1°32'50
max. Earth dist.	652 Oct 31 j 14:42	12° ℳ 07'22	31.30501 AU	max. Earth dist.	660 Nov 17 j 21:36	29° ℳ 33'25	31.26990 AU
retrograde	653 Feb 11 j 15:32	14° ℳ 36'01			660 Nov 29 j 16:19	0° ℳ	
opposition	653 May 01 j 12:17	13° ℳ 13'55	1°52'54	retrograde	661 Mar 01 j 06:49	2° ℳ 02'23	
min. Earth dist.	653 May 02 j 02:41	13° ℳ 12'57	29.30591 AU	opposition	661 May 19 j 16:23	0° ℳ 39'50	1°37'57
direct	653 Jul 21 j 16:32	11° ℳ 49'49		min. Earth dist.	661 May 20 j 01:13	0° ℳ 39'15	29.26838 AU
					661 Jun 14 j 06:47	30° ℳ	
conjunction	653 Nov 03 j 14:26	14° ℳ 19'31	1°45'04	direct	661 Aug 08 j 12:52	29° ℳ 15'58	

	661 Sep 30 j 05:00	0°♏		minimum elong	669 Dec 07 j 18:58	19°♏14'47	1°07'37
				max. Earth dist.	669 Dec 07 j 15:44	19°♏14'29	31.21803 AU
conjunction	661 Nov 20 j 16:48	1°♏44'58 1°30'31		retrograde	670 Mar 21 j 13:12	21°♏44'06	
minimum elong	661 Nov 20 j 16:48	1°♏44'58 1°30'30		opposition	670 Jun 09 j 12:13	20°♏21'08	1°10'28
max. Earth dist.	661 Nov 20 j 08:47	1°♏44'12 31.26536 AU		min. Earth dist.	670 Jun 09 j 14:19	20°♏21'00	29.21322 AU
retrograde	662 Mar 03 j 16:39	4°♏13'07		direct	670 Aug 28 j 19:25	18°♏57'41	
opposition	662 May 22 j 05:04	2°♏50'33 1°35'25					
min. Earth dist.	662 May 22 j 12:53	2°♏50'01 29.26407 AU		conjunction	670 Dec 10 j 04:21	21°♏26'07	1°04'17
direct	662 Aug 11 j 01:29	1°♏26'45		minimum elong	670 Dec 10 j 04:22	21°♏26'07	1°04'18
				max. Earth dist.	670 Dec 10 j 03:02	21°♏25'59	31.20751 AU
conjunction	662 Nov 23 j 01:52	3°♏55'42 1°28'04		retrograde	671 Mar 23 j 23:07	23°♏55'31	
minimum elong	662 Nov 23 j 01:53	3°♏55'42 1°28'05		opposition	671 Jun 12 j 01:06	22°♏32'27	1°06'51
max. Earth dist.	662 Nov 22 j 17:50	3°♏54'56 31.26148 AU		min. Earth dist.	671 Jun 12 j 02:20	22°♏32'22	29.20253 AU
retrograde	663 Mar 06 j 04:04	6°♏24'00		direct	671 Aug 31 j 08:07	21°♏08'58	
opposition	663 May 24 j 17:41	5°♏01'25 1°32'44					
min. Earth dist.	663 May 25 j 00:13	5°♏00'58 29.26039 AU		conjunction	671 Dec 12 j 13:31	23°♏37'18	1°00'51
direct	663 Aug 13 j 12:20	3°♏37'42		minimum elong	671 Dec 12 j 13:32	23°♏37'18	1°00'50
				max. Earth dist.	671 Dec 12 j 12:12	23°♏37'10	31.19701 AU
conjunction	663 Nov 25 j 11:05	6°♏06'36 1°25'30		retrograde	672 Mar 25 j 11:20	26°♏06'48	
minimum elong	663 Nov 25 j 11:05	6°♏06'36 1°25'30		opposition	672 Jun 13 j 14:00	24°♏43'38	1°03'08
max. Earth dist.	663 Nov 25 j 04:55	6°♏06'01 31.25782 AU		min. Earth dist.	672 Jun 13 j 13:50	24°♏43'39	29.19228 AU
retrograde	664 Mar 07 j 13:48	8°♏35'04		direct	672 Sep 01 j 19:57	23°♏20'09	
opposition	664 May 26 j 06:28	7°♏12'28 1°29'56					
min. Earth dist.	664 May 26 j 12:54	7°♏12'02 29.25658 AU		conjunction	672 Dec 13 j 22:48	25°♏48'24	0°57'19
direct	664 Aug 15 j 00:13	5°♏48'50		minimum elong	672 Dec 13 j 22:48	25°♏48'24	0°57'19
				max. Earth dist.	672 Dec 13 j 23:29	25°♏48'28	31.18705 AU
conjunction	664 Nov 26 j 20:12	8°♏17'42 1°22'49		retrograde	673 Mar 27 j 21:36	28°♏18'02	
minimum elong	664 Nov 26 j 20:12	8°♏17'42 1°22'49		opposition	673 Jun 16 j 03:00	26°♏54'46	0°59'19
max. Earth dist.	664 Nov 26 j 14:05	8°♏17'07 31.25393 AU		min. Earth dist.	673 Jun 16 j 02:21	26°♏54'49	29.18276 AU
retrograde	665 Mar 10 j 01:53	10°♏46'19		direct	673 Sep 04 j 08:39	25°♏31'18	
opposition	665 May 28 j 19:12	9°♏23'43 1°26'59					
min. Earth dist.	665 May 28 j 23:56	9°♏23'23 29.25232 AU		conjunction	673 Dec 16 j 08:02	27°♏59'29	0°53'43
direct	665 Aug 17 j 11:08	8°♏00'09		minimum elong	673 Dec 16 j 08:02	27°♏59'29	0°53'42
				max. Earth dist.	673 Dec 16 j 09:13	27°♏59'36	31.17820 AU
conjunction	665 Nov 29 j 05:33	10°♏28'58 1°20'00			674 Feb 15 j 22:52	0°♏	
minimum elong	665 Nov 29 j 05:33	10°♏28'58 1°19'59		retrograde	674 Mar 30 j 09:42	0°♏29'16	
max. Earth dist.	665 Nov 29 j 00:30	10°♏28'29 31.24925 AU			674 May 13 j 10:01	30°♏	
retrograde	666 Mar 12 j 12:11	12°♏57'45		opposition	674 Jun 18 j 15:55	29°♏05'56	0°55'25
opposition	666 May 31 j 08:16	11°♏35'07 1°23'55		min. Earth dist.	674 Jun 18 j 13:07	29°♏06'07	29.17439 AU
min. Earth dist.	666 May 31 j 13:21	11°♏34'46 29.24717 AU		direct	674 Sep 06 j 19:52	27°♏42'30	
direct	666 Aug 19 j 21:52	10°♏11'37			674 Dec 14 j 01:08	0°♏	
conjunction	666 Dec 01 j 14:49	12°♏40'22 1°17'04		conjunction	674 Dec 18 j 17:17	0°♏10'38	0°50'02
minimum elong	666 Dec 01 j 14:49	12°♏40'22 1°17'04		minimum elong	674 Dec 18 j 17:18	0°♏10'38	0°50'02
max. Earth dist.	666 Dec 01 j 10:25	12°♏39'57 31.24361 AU		max. Earth dist.	674 Dec 18 j 19:50	0°♏10'52	31.17027 AU
retrograde	667 Mar 15 j 00:07	15°♏09'19		retrograde	675 Apr 01 j 19:52	2°♏40'34	
opposition	667 Jun 02 j 21:12	13°♏46'37 1°20'43		opposition	675 Jun 21 j 04:59	1°♏17'12	0°51'26
min. Earth dist.	667 Jun 03 j 00:41	13°♏46'23 29.24074 AU		min. Earth dist.	675 Jun 21 j 02:07	1°♏17'23	29.16688 AU
direct	667 Aug 22 j 08:47	12°♏23'10			675 Aug 20 j 16:30	30°♏	
				direct	675 Sep 09 j 06:34	29°♏53'49	
conjunction	667 Dec 04 j 00:15	14°♏51'51 1°14'01			675 Sep 28 j 12:01	0°♏	
minimum elong	667 Dec 04 j 00:15	14°♏51'51 1°14'00					
max. Earth dist.	667 Dec 03 j 20:01	14°♏51'27 31.23644 AU		conjunction	675 Dec 21 j 02:42	2°♏21'54	0°46'16
retrograde	668 Mar 16 j 11:59	17°♏20'56		minimum elong	675 Dec 21 j 02:42	2°♏21'54	0°46'15
opposition	668 Jun 04 j 10:08	15°♏58'11 1°17'24		max. Earth dist.	675 Dec 21 j 06:22	2°♏22'15	31.16320 AU
min. Earth dist.	668 Jun 04 j 14:01	15°♏57'55 29.23286 AU		retrograde	676 Apr 03 j 07:38	4°♏52'01	
direct	668 Aug 23 j 18:36	14°♏34'44		opposition	676 Jun 22 j 17:44	3°♏28'36	0°47'23
				min. Earth dist.	676 Jun 22 j 12:56	3°♏28'56	29.15994 AU
conjunction	668 Dec 05 j 09:45	17°♏03'21 1°10'52		direct	676 Sep 10 j 17:16	2°♏05'17	
minimum elong	668 Dec 05 j 09:46	17°♏03'21 1°10'53					
max. Earth dist.	668 Dec 05 j 06:46	17°♏03'04 31.22790 AU		conjunction	676 Dec 22 j 12:06	4°♏33'22	0°42'26
retrograde	669 Mar 18 j 23:43	19°♏32'33		minimum elong	676 Dec 22 j 12:06	4°♏33'22	0°42'26
opposition	669 Jun 06 j 23:07	18°♏09'42 1°13'59		max. Earth dist.	676 Dec 22 j 16:16	4°♏33'45	31.15641 AU
min. Earth dist.	669 Jun 07 j 01:40	18°♏09'32 29.22349 AU		retrograde	677 Apr 05 j 20:07	7°♏03'40	
direct	669 Aug 26 j 08:15	16°♏46'16		opposition	677 Jun 25 j 06:54	5°♏40'13	0°43'14
				min. Earth dist.	677 Jun 25 j 02:10	5°♏40'33	29.15325 AU
conjunction	669 Dec 07 j 18:57	19°♏14'47 1°07'37		direct	677 Sep 13 j 02:39	4°♏16'58	

conjunction	677 Dec 24 j 21:37	6°☾45'01	0°38'32	conjunction	686 Jan 11 j 03:59	24°☾22'17	0°05'48
minimum elong	677 Dec 24 j 21:37	6°☾45'01	0°38'31	minimum elong	686 Jan 11 j 03:59	24°☾22'17	0°05'47
max. Earth dist.	677 Dec 25 j 03:28	6°☾45'34	31.14969 AU	behind sun begin	686 Jan 10 j 21:50	24°☾21'44	
retrograde	678 Apr 08 j 08:29	9°☾15'31		behind sun end	686 Jan 11 j 10:07	24°☾22'51	
opposition	678 Jun 27 j 20:00	7°☾52'03	0°39'02	max. Earth dist.	686 Jan 11 j 15:04	24°☾23'19	31.06983 AU
min. Earth dist.	678 Jun 27 j 13:47	7°☾52'28	29.14623 AU	retrograde	686 Apr 26 j 10:19	26°☾53'59	
direct	678 Sep 15 j 15:01	6°☾28'50		opposition	686 Jul 16 j 05:00	25°☾29'54	0°03'51
				min. Earth dist.	686 Jul 15 j 17:21	25°☾30'42	29.06530 AU
conjunction	678 Dec 27 j 07:12	8°☾56'54	0°34'34	direct	686 Oct 03 j 10:11	24°☾06'46	
minimum elong	678 Dec 27 j 07:12	8°☾56'54	0°34'35				
max. Earth dist.	678 Dec 27 j 12:44	8°☾57'25	31.14240 AU	conjunction	687 Jan 13 j 14:04	26°☾34'32	0°01'34
retrograde	679 Apr 10 j 22:52	11°☾27'34		minimum elong	687 Jan 13 j 14:04	26°☾34'32	0°01'35
opposition	679 Jun 30 j 09:04	10°☾04'04	0°34'46	behind sun begin	687 Jan 13 j 07:40	26°☾33'58	
min. Earth dist.	679 Jun 30 j 02:35	10°☾04'30	29.13862 AU	behind sun end	687 Jan 13 j 20:28	26°☾35'07	
direct	679 Sep 18 j 00:56	8°☾40'54		max. Earth dist.	687 Jan 14 j 03:01	26°☾35'45	31.06084 AU
				retrograde	687 Apr 28 j 22:05	29°☾06'23	
conjunction	679 Dec 29 j 17:04	11°☾08'58	0°30'33	desc. node	687 May 26 j 04:25	28°☾54'48	
minimum elong	679 Dec 29 j 17:04	11°☾08'58	0°30'33	opposition	687 Jul 18 j 17:49	27°☾42'15	0°00'-38
max. Earth dist.	679 Dec 30 j 00:12	11°☾09'38	31.13421 AU	min. Earth dist.	687 Jul 18 j 04:30	27°☾43'10	29.05680 AU
retrograde	680 Apr 12 j 10:08	13°☾39'49		direct	687 Oct 05 j 21:54	26°☾19'09	
opposition	680 Jul 01 j 22:15	12°☾16'16	0°30'27				
min. Earth dist.	680 Jul 01 j 15:09	12°☾16'44	29.12976 AU	conjunction	688 Jan 16 j 00:03	28°☾46'55	0°-2'-45
direct	680 Sep 19 j 13:01	10°☾53'08		minimum elong	688 Jan 16 j 00:03	28°☾46'55	0°02'46
				behind sun begin	688 Jan 15 j 17:40	28°☾46'20	
conjunction	680 Dec 31 j 02:45	13°☾21'10	0°26'30	behind sun end	688 Jan 16 j 06:27	28°☾47'29	
minimum elong	680 Dec 31 j 02:45	13°☾21'10	0°26'30	max. Earth dist.	688 Jan 16 j 12:52	28°☾48'07	31.05287 AU
max. Earth dist.	680 Dec 31 j 09:30	13°☾21'48	31.12481 AU		688 Feb 18 j 11:13	0°≈	
retrograde	681 Apr 15 j 00:00	15°☾52'10		retrograde	688 Apr 30 j 12:06	1°≈18'55	
opposition	681 Jul 04 j 11:28	14°☾28'33	0°26'05		688 Jul 17 j 01:38	30°☾☾	
min. Earth dist.	681 Jul 04 j 03:26	14°☾29'05	29.11974 AU	opposition	688 Jul 20 j 06:54	29°☾54'45	0°-5'-9
direct	681 Sep 22 j 00:57	13°☾05'26		min. Earth dist.	688 Jul 19 j 17:03	29°☾55'41	29.04934 AU
				direct	688 Oct 07 j 06:48	28°☾31'40	
conjunction	682 Jan 02 j 12:41	15°☾33'26	0°22'24		688 Dec 21 j 14:26	0°≈	
minimum elong	682 Jan 02 j 12:41	15°☾33'26	0°22'24				
max. Earth dist.	682 Jan 02 j 20:52	15°☾34'12	31.11418 AU	conjunction	689 Jan 17 j 10:10	0°≈59'26	0°-6'-57
retrograde	682 Apr 17 j 11:49	18°☾04'35		minimum elong	689 Jan 17 j 10:10	0°≈59'26	0°06'57
opposition	682 Jul 07 j 00:43	16°☾40'52	0°21'42	behind sun begin	689 Jan 17 j 04:12	0°≈58'54	
min. Earth dist.	682 Jul 06 j 16:43	16°☾41'24	29.10862 AU	behind sun end	689 Jan 17 j 16:08	0°≈59'58	
direct	682 Sep 24 j 13:52	15°☾17'45		max. Earth dist.	689 Jan 18 j 00:58	1°≈00'49	31.04569 AU
				retrograde	689 May 02 j 23:58	3°≈31'37	
conjunction	683 Jan 04 j 22:28	17°☾45'41	0°18'17	opposition	689 Jul 22 j 20:00	2°≈07'24	0°-9'-39
minimum elong	683 Jan 04 j 22:28	17°☾45'41	0°18'17	min. Earth dist.	689 Jul 22 j 05:15	2°≈08'24	29.04237 AU
max. Earth dist.	683 Jan 05 j 06:51	17°☾46'29	31.10284 AU	direct	689 Oct 09 j 18:34	0°≈44'22	
retrograde	683 Apr 20 j 00:21	20°☾16'58					
opposition	683 Jul 09 j 13:47	18°☾53'10	0°17'16	conjunction	690 Jan 19 j 20:23	3°≈12'08	0°-11'-8
min. Earth dist.	683 Jul 09 j 04:07	18°☾53'49	29.09703 AU	minimum elong	690 Jan 19 j 20:24	3°≈12'08	0°11'10
direct	683 Sep 27 j 01:39	17°☾30'02		behind sun begin	690 Jan 19 j 15:35	3°≈11'42	
				behind sun end	690 Jan 20 j 01:12	3°≈12'35	
conjunction	684 Jan 07 j 08:19	19°☾57'55	0°14'08	max. Earth dist.	690 Jan 20 j 11:03	3°≈13'31	31.03897 AU
minimum elong	684 Jan 07 j 08:19	19°☾57'55	0°14'07	retrograde	690 May 05 j 15:09	5°≈44'29	
behind sun begin	684 Jan 07 j 05:02	19°☾57'37		opposition	690 Jul 25 j 09:04	4°≈20'15	0°-14'-9
behind sun end	684 Jan 07 j 11:36	19°☾58'12		min. Earth dist.	690 Jul 24 j 17:25	4°≈21'19	29.03575 AU
max. Earth dist.	684 Jan 07 j 17:39	19°☾58'47	31.09114 AU	direct	690 Oct 12 j 05:42	2°≈57'15	
retrograde	684 Apr 21 j 10:18	22°☾29'19					
opposition	684 Jul 11 j 02:50	21°☾05'24	0°12'49	conjunction	691 Jan 22 j 06:53	5°≈25'03	0°-15'-20
min. Earth dist.	684 Jul 10 j 17:18	21°☾06'03	29.08554 AU	minimum elong	691 Jan 22 j 06:52	5°≈25'03	0°15'20
direct	684 Sep 28 j 13:03	19°☾42'16		behind sun begin	691 Jan 22 j 04:44	5°≈24'51	
				behind sun end	691 Jan 22 j 09:00	5°≈25'14	
conjunction	685 Jan 08 j 18:13	22°☾10'06	0°09'58	max. Earth dist.	691 Jan 22 j 22:55	5°≈26'33	31.03213 AU
minimum elong	685 Jan 08 j 18:13	22°☾10'06	0°09'58	retrograde	691 May 08 j 03:54	7°≈57'34	
behind sun begin	685 Jan 08 j 13:00	22°☾09'37		opposition	691 Jul 27 j 22:12	6°≈33'17	0°-18'-37
behind sun end	685 Jan 08 j 23:26	22°☾10'34		min. Earth dist.	691 Jul 27 j 06:45	6°≈34'20	29.02868 AU
max. Earth dist.	685 Jan 09 j 04:48	22°☾11'05	31.08005 AU	direct	691 Oct 14 j 17:52	5°≈10'19	
retrograde	685 Apr 23 j 22:14	24°☾41'38					
opposition	685 Jul 13 j 15:51	23°☾17'38	0°08'20	conjunction	692 Jan 24 j 17:26	7°≈38'07	0°-19'-30
min. Earth dist.	685 Jul 13 j 04:15	23°☾18'26	29.07485 AU	minimum elong	692 Jan 24 j 17:26	7°≈38'07	0°19'32
direct	685 Oct 01 j 00:27	21°☾54'29		max. Earth dist.	692 Jan 25 j 09:27	7°≈39'38	31.02473 AU

retrograde	692 May 09 j 17:42	10°≈10'48		retrograde	700 May 27 j 23:38	27°≈58'14	
opposition	692 Jul 29 j 11:12	8°≈46'28	0°-23'-5	opposition	700 Aug 16 j 18:53	26°≈33'20	0°-56'-58
min. Earth dist.	692 Jul 28 j 18:30	8°≈47'37	29.02082 AU	min. Earth dist.	700 Aug 15 j 22:56	26°≈34'42	28.94152 AU
direct	692 Oct 16 j 05:27	7°≈23'31		direct	700 Nov 02 j 23:31	25°≈10'16	
conjunction	693 Jan 26 j 04:12	9°≈51'21	0°-23'-39	conjunction	701 Feb 12 j 19:54	27°≈38'09	0°-55'-6
minimum elong	693 Jan 26 j 04:12	9°≈51'21	0°23'39	minimum elong	701 Feb 12 j 19:54	27°≈38'09	0°55'06
max. Earth dist.	693 Jan 26 j 20:35	9°≈52'54	31.01621 AU	max. Earth dist.	701 Feb 13 j 16:56	27°≈40'08	30.93758 AU
retrograde	693 May 12 j 05:42	12°≈24'10			701 May 03 j 09:13	0°✕	
min. Earth dist.	693 Jul 31 j 08:23	11°≈00'53	29.01178 AU	retrograde	701 May 30 j 14:18	0°✕11'57	
opposition	693 Aug 01 j 00:29	10°≈59'47	0°-27'-30		701 Jun 27 j 03:32	30°R≈	
direct	693 Oct 18 j 17:16	9°≈36'51		min. Earth dist.	701 Aug 18 j 10:18	28°≈48'31	28.93479 AU
				opposition	701 Aug 19 j 07:40	28°≈47'03	-1°00'-53
conjunction	694 Jan 28 j 14:59	12°≈04'39	0°-27'-46	direct	701 Nov 05 j 10:47	27°≈24'00	
minimum elong	694 Jan 28 j 14:59	12°≈04'39	0°27'47				
max. Earth dist.	694 Jan 29 j 08:02	12°≈06'16	31.00661 AU	conjunction	702 Feb 15 j 07:11	29°≈51'56	0°-58'-43
retrograde	694 May 14 j 19:01	14°≈37'36		minimum elong	702 Feb 15 j 07:11	29°≈51'56	0°58'45
opposition	694 Aug 03 j 13:33	13°≈13'08	0°-31'-53	max. Earth dist.	702 Feb 16 j 04:48	29°≈53'59	30.93110 AU
min. Earth dist.	694 Aug 02 j 20:07	13°≈14'20	29.00153 AU		702 Feb 18 j 20:18	0°✕	
direct	694 Oct 21 j 05:38	11°≈50'11		retrograde	702 Jun 02 j 03:37	2°✕25'53	
				opposition	702 Aug 21 j 20:33	1°✕00'57	-1°-4'-43
conjunction	695 Jan 31 j 01:51	14°≈17'59	0°-31'-50	min. Earth dist.	702 Aug 20 j 23:46	1°✕02'23	28.92864 AU
minimum elong	695 Jan 31 j 01:51	14°≈17'59	0°31'50		702 Oct 02 j 01:40	30°R≈	
max. Earth dist.	695 Jan 31 j 18:39	14°≈19'34	30.99582 AU	direct	702 Nov 07 j 22:46	29°≈37'58	
	695 Feb 18 j 18:14	15°≈			702 Dec 13 j 19:00	0°✕	
retrograde	695 May 17 j 06:53	16°≈51'02		conjunction	703 Feb 17 j 18:48	2°✕05'57	-1°-2'-16
min. Earth dist.	695 Aug 05 j 09:47	15°≈27'38	28.99045 AU	minimum elong	703 Feb 17 j 18:48	2°✕05'57	1°02'16
opposition	695 Aug 06 j 02:33	15°≈26'29	0°-36'-13	max. Earth dist.	703 Feb 18 j 17:07	2°✕08'04	30.92512 AU
	695 Aug 22 j 11:27	15°R≈		retrograde	703 Jun 04 j 18:23	4°✕40'02	
direct	695 Oct 23 j 15:56	14°≈03'30		min. Earth dist.	703 Aug 23 j 11:07	3°✕16'36	28.92266 AU
	695 Dec 21 j 09:36	15°≈		opposition	703 Aug 24 j 09:07	3°✕15'05	-1°-8'-28
conjunction	696 Feb 02 j 12:49	16°≈31'16	0°-35'-52	direct	703 Nov 10 j 11:14	1°✕52'07	
minimum elong	696 Feb 02 j 12:49	16°≈31'16	0°35'53				
max. Earth dist.	696 Feb 03 j 07:01	16°≈33'00	30.98451 AU	conjunction	704 Feb 20 j 06:26	4°✕20'10	-1°-5'-43
retrograde	696 May 18 j 18:25	19°≈04'26		minimum elong	704 Feb 20 j 06:25	4°✕20'10	1°05'45
opposition	696 Aug 07 j 15:27	17°≈39'48	0°-40'-30	max. Earth dist.	704 Feb 21 j 04:21	4°✕22'14	30.91893 AU
min. Earth dist.	696 Aug 06 j 21:26	17°≈41'02	28.97907 AU	retrograde	704 Jun 06 j 06:26	6°✕54'23	
direct	696 Oct 25 j 04:02	16°≈16'46		opposition	704 Aug 25 j 22:00	5°✕29'25	-1°-12'-6
				min. Earth dist.	704 Aug 25 j 00:55	5°✕30'53	28.91635 AU
conjunction	697 Feb 03 j 23:30	18°≈44'32	0°-39'-50	direct	704 Nov 11 j 21:30	4°✕06'28	
minimum elong	697 Feb 03 j 23:30	18°≈44'32	0°39'51				
max. Earth dist.	697 Feb 04 j 17:20	18°≈46'13	30.97324 AU	conjunction	705 Feb 21 j 18:15	6°✕34'33	-1°-9'-5
retrograde	697 May 21 j 07:56	21°≈17'49		minimum elong	705 Feb 21 j 18:15	6°✕34'33	1°09'05
min. Earth dist.	697 Aug 09 j 10:15	19°≈54'21	28.96821 AU	max. Earth dist.	705 Feb 22 j 17:13	6°✕36'44	30.91220 AU
opposition	697 Aug 10 j 04:29	19°≈53'05	0°-44'-43	retrograde	705 Jun 08 j 18:42	9°✕08'53	
direct	697 Oct 27 j 13:15	18°≈30'02		opposition	705 Aug 28 j 10:47	7°✕43'54	-1°-15'-38
				min. Earth dist.	705 Aug 27 j 12:56	7°✕45'25	28.90914 AU
conjunction	698 Feb 06 j 10:35	20°≈57'48	0°-43'-45	direct	705 Nov 14 j 09:47	6°✕20'55	
minimum elong	698 Feb 06 j 10:35	20°≈57'48	0°43'46				
max. Earth dist.	698 Feb 07 j 06:10	20°≈59'39	30.96269 AU	conjunction	706 Feb 24 j 06:12	8°✕49'03	-1°-12'-20
retrograde	698 May 23 j 19:54	23°≈31'12		minimum elong	706 Feb 24 j 06:11	8°✕49'03	1°12'21
opposition	698 Aug 12 j 17:16	22°≈06'24	0°-48'-52	max. Earth dist.	706 Feb 25 j 04:01	8°✕51'07	30.90444 AU
min. Earth dist.	698 Aug 11 j 22:13	22°≈07'43	28.95817 AU	retrograde	706 Jun 11 j 08:29	11°✕23'28	
direct	698 Oct 30 j 01:02	20°≈43'20		opposition	706 Aug 30 j 23:32	9°✕58'26	-1°-19'-3
				min. Earth dist.	706 Aug 30 j 02:15	9°✕59'54	28.90094 AU
conjunction	699 Feb 08 j 21:34	23°≈11'07	0°-47'-36	direct	706 Nov 16 j 19:13	8°✕35'25	
minimum elong	699 Feb 08 j 21:34	23°≈11'07	0°47'36				
max. Earth dist.	699 Feb 09 j 16:56	23°≈12'57	30.95322 AU	conjunction	707 Feb 26 j 18:23	11°✕03'34	-1°-15'-28
retrograde	699 May 26 j 11:02	25°≈44'39		minimum elong	707 Feb 26 j 18:22	11°✕03'34	1°15'29
min. Earth dist.	699 Aug 14 j 10:09	24°≈21'10	28.94935 AU	max. Earth dist.	707 Feb 27 j 17:11	11°✕05'44	30.89564 AU
opposition	699 Aug 15 j 06:05	24°≈19'48	0°-52'-57	retrograde	707 Jun 13 j 20:05	13°✕38'03	
direct	699 Nov 01 j 11:55	22°≈56'43		opposition	707 Sep 02 j 12:11	12°✕12'56	-1°-22'-21
				min. Earth dist.	707 Sep 01 j 14:44	12°✕14'25	28.89168 AU
conjunction	700 Feb 11 j 08:42	25°≈24'33	0°-51'-23	direct	707 Nov 19 j 07:44	10°✕49'52	
minimum elong	700 Feb 11 j 08:42	25°≈24'33	0°51'25				
max. Earth dist.	700 Feb 12 j 05:30	25°≈26'32	30.94480 AU	conjunction	708 Feb 29 j 06:18	13°✕18'01	-1°-18'-30

minimum elong	708 Feb 29 j 06:18	13° ✕ 18'01	1°18'32	minimum elong	716 Mar 18 j 09:17	1° ☿ 12'40	1°38'09
max. Earth dist.	708 Mar 01 j 04:17	13° ✕ 20'05	30.88613 AU	max. Earth dist.	716 Mar 19 j 10:07	1° ☿ 15'00	30.83900 AU
retrograde	708 Jun 15 j 09:55	15° ✕ 52'32		retrograde	716 Jul 03 j 19:50	3° ☿ 47'37	
min. Earth dist.	708 Sep 03 j 03:04	14° ✕ 28'50	28.88211 AU	min. Earth dist.	716 Sep 21 j 04:19	2° ☿ 23'49	28.83908 AU
opposition	708 Sep 04 j 00:45	14° ✕ 27'20	-1°-25'-32	opposition	716 Sep 22 j 02:55	2° ☿ 22'13	-1°-45'-57
direct	708 Nov 20 j 18:24	13° ✕ 04'11		direct	716 Dec 08 j 14:36	0° ☿ 58'57	
conjunction	709 Mar 02 j 18:27	15° ✕ 32'21	-1°-21'-25	conjunction	717 Mar 20 j 22:12	3° ☿ 27'36	-1°-39'-57
minimum elong	709 Mar 02 j 18:26	15° ✕ 32'21	1°21'25	minimum elong	717 Mar 20 j 22:12	3° ☿ 27'36	1°39'58
max. Earth dist.	709 Mar 03 j 17:26	15° ✕ 34'32	30.87649 AU	max. Earth dist.	717 Mar 21 j 21:48	3° ☿ 29'50	30.83685 AU
retrograde	709 Jun 17 j 21:48	18° ✕ 06'55		retrograde	717 Jul 06 j 09:54	6° ☿ 02'38	
opposition	709 Sep 06 j 13:15	16° ✕ 41'37	-1°-28'-35	opposition	717 Sep 24 j 15:06	4° ☿ 37'15	-1°-47'-48
min. Earth dist.	709 Sep 05 j 15:56	16° ✕ 43'06	28.87275 AU	min. Earth dist.	717 Sep 23 j 16:43	4° ☿ 38'49	28.83681 AU
direct	709 Nov 23 j 05:44	15° ✕ 18'25		direct	717 Dec 11 j 00:36	3° ☿ 13'58	
conjunction	710 Mar 05 j 06:35	17° ✕ 46'36	-1°-24'-12	conjunction	718 Mar 23 j 11:24	5° ☿ 42'43	-1°-41'-37
minimum elong	710 Mar 05 j 06:34	17° ✕ 46'36	1°24'13	minimum elong	718 Mar 23 j 11:24	5° ☿ 42'43	1°41'38
max. Earth dist.	710 Mar 06 j 05:26	17° ✕ 48'45	30.86754 AU	max. Earth dist.	718 Mar 24 j 11:25	5° ☿ 44'59	30.83408 AU
retrograde	710 Jun 20 j 12:28	20° ✕ 21'11		retrograde	718 Jul 08 j 22:13	8° ☿ 17'47	
min. Earth dist.	710 Sep 08 j 03:16	18° ✕ 57'22	28.86430 AU	min. Earth dist.	718 Sep 26 j 05:54	6° ☿ 53'55	28.83359 AU
opposition	710 Sep 09 j 01:36	18° ✕ 55'49	-1°-31'-30	opposition	718 Sep 27 j 03:19	6° ☿ 52'25	-1°-49'-31
direct	710 Nov 25 j 17:31	17° ✕ 32'33		direct	718 Dec 13 j 11:23	5° ☿ 29'07	
conjunction	711 Mar 07 j 18:49	20° ✕ 00'46	-1°-26'-51	conjunction	719 Mar 26 j 00:38	7° ☿ 57'57	-1°-43'-8
minimum elong	711 Mar 07 j 18:48	20° ✕ 00'46	1°26'52	minimum elong	719 Mar 26 j 00:38	7° ☿ 57'57	1°43'08
max. Earth dist.	711 Mar 08 j 17:59	20° ✕ 02'57	30.85948 AU	max. Earth dist.	719 Mar 26 j 23:37	8° ☿ 00'07	30.83047 AU
retrograde	711 Jun 23 j 01:37	22° ✕ 35'24		retrograde	719 Jul 11 j 12:47	10° ☿ 33'01	
opposition	711 Sep 11 j 13:51	21° ✕ 09'58	-1°-34'-16	opposition	719 Sep 29 j 15:18	9° ☿ 07'38	-1°-51'-3
min. Earth dist.	711 Sep 10 j 16:11	21° ✕ 11'29	28.85699 AU	min. Earth dist.	719 Sep 28 j 17:36	9° ☿ 09'10	28.82955 AU
direct	711 Nov 28 j 05:36	19° ✕ 46'40		direct	719 Dec 15 j 23:15	7° ☿ 44'17	
conjunction	712 Mar 09 j 07:08	22° ✕ 14'55	-1°-29'-23	conjunction	720 Mar 27 j 13:52	10° ☿ 13'11	-1°-44'-30
minimum elong	712 Mar 09 j 07:08	22° ✕ 14'55	1°29'24	minimum elong	720 Mar 27 j 13:52	10° ☿ 13'11	1°44'31
max. Earth dist.	712 Mar 10 j 06:58	22° ✕ 17'10	30.85291 AU	max. Earth dist.	720 Mar 28 j 12:34	10° ☿ 15'19	30.82599 AU
retrograde	712 Jun 24 j 16:04	24° ✕ 49'36		retrograde	720 Jul 13 j 01:52	12° ☿ 48'15	
min. Earth dist.	712 Sep 12 j 03:02	23° ✕ 25'45	28.85115 AU	min. Earth dist.	720 Sep 30 j 06:59	11° ☿ 24'16	28.82489 AU
opposition	712 Sep 13 j 02:04	23° ✕ 24'08	-1°-36'-54	opposition	720 Oct 01 j 03:25	11° ☿ 22'50	-1°-52'-25
direct	712 Nov 29 j 18:20	22° ✕ 00'48		direct	720 Dec 17 j 11:40	9° ☿ 59'25	
conjunction	713 Mar 11 j 19:20	24° ✕ 29'07	-1°-31'-47	conjunction	721 Mar 30 j 03:05	12° ☿ 28'22	-1°-45'-42
minimum elong	713 Mar 11 j 19:19	24° ✕ 29'07	1°31'47	minimum elong	721 Mar 30 j 03:04	12° ☿ 28'22	1°45'42
max. Earth dist.	713 Mar 12 j 18:55	24° ✕ 31'21	30.84771 AU	max. Earth dist.	721 Mar 31 j 01:42	12° ☿ 30'30	30.82133 AU
retrograde	713 Jun 27 j 04:46	27° ✕ 03'52		retrograde	721 Jul 15 j 16:04	15° ☿ 03'24	
opposition	713 Sep 15 j 14:27	25° ✕ 38'24	-1°-39'-24	opposition	721 Oct 03 j 15:16	13° ☿ 37'57	-1°-53'-37
min. Earth dist.	713 Sep 14 j 16:10	25° ✕ 39'57	28.84675 AU	min. Earth dist.	721 Oct 02 j 18:08	13° ☿ 39'26	28.82021 AU
direct	713 Dec 02 j 04:46	24° ✕ 15'04		direct	721 Dec 20 j 00:53	12° ☿ 14'28	
conjunction	714 Mar 14 j 07:57	26° ✕ 43'27	-1°-34'-3	conjunction	722 Apr 01 j 16:23	14° ☿ 43'28	-1°-46'-44
minimum elong	714 Mar 14 j 07:56	26° ✕ 43'27	1°34'04	minimum elong	722 Apr 01 j 16:23	14° ☿ 43'28	1°46'45
max. Earth dist.	714 Mar 15 j 08:42	26° ✕ 45'47	30.84395 AU	max. Earth dist.	722 Apr 02 j 14:14	14° ☿ 45'31	30.81676 AU
retrograde	714 Jun 29 j 18:04	29° ✕ 18'15		retrograde	722 Jul 18 j 05:09	17° ☿ 18'28	
min. Earth dist.	714 Sep 17 j 03:23	27° ☿ 54'25	28.84353 AU	min. Earth dist.	722 Oct 05 j 07:12	15° ☿ 54'23	28.81605 AU
opposition	714 Sep 18 j 02:29	27° ☿ 52'48	-1°-41'-44	opposition	722 Oct 06 j 03:04	15° ☿ 52'59	-1°-54'-38
direct	714 Dec 04 j 17:05	26° ☿ 29'29		direct	722 Dec 22 j 11:55	14° ☿ 29'26	
conjunction	715 Mar 16 j 20:32	28° ☿ 57'57	-1°-36'-10	conjunction	723 Apr 04 j 05:49	16° ☿ 58'28	-1°-47'-37
minimum elong	715 Mar 16 j 20:31	28° ☿ 57'57	1°36'10	minimum elong	723 Apr 04 j 05:49	16° ☿ 58'28	1°47'37
max. Earth dist.	715 Mar 17 j 20:17	29° ☿ 00'12	30.84120 AU	max. Earth dist.	723 Apr 05 j 04:23	17° ☿ 00'36	30.81303 AU
retrograde	715 Apr 14 j 00:20	0° ☿		retrograde	723 Jul 20 j 19:23	19° ☿ 33'25	
opposition	715 Jul 02 j 08:05	1° ☿ 32'50		opposition	723 Oct 08 j 14:43	18° ☿ 07'55	-1°-55'-29
opposition	715 Sep 20 j 14:45	0° ☿ 07'24	-1°-43'-55	min. Earth dist.	723 Oct 07 j 18:15	18° ☿ 09'22	28.81281 AU
min. Earth dist.	715 Sep 19 j 16:12	0° ☿ 08'59	28.84122 AU	direct	723 Dec 25 j 01:32	16° ☿ 44'20	
direct	715 Sep 25 j 00:46	30° ☿		conjunction	724 Apr 05 j 18:58	19° ☿ 13'25	-1°-48'-20
	715 Dec 07 j 02:34	28° ☿ 44'06		minimum elong	724 Apr 05 j 18:58	19° ☿ 13'25	1°48'21
	716 Feb 13 j 22:34	0° ☿		max. Earth dist.	724 Apr 06 j 16:25	19° ☿ 15'26	30.81039 AU
conjunction	716 Mar 18 j 09:17	1° ☿ 12'40	-1°-38'-8	retrograde	724 Jul 22 j 08:37	21° ☿ 48'21	

min. Earth dist.	724 Oct 09 j 06:39	20° Υ 24'13	28.81095 AU	opposition	732 Oct 27 j 22:39	8° \mathcal{B} 24'08	-1°-55'-6
opposition	724 Oct 10 j 02:30	20° Υ 22'49	-1°-56'-10	min. Earth dist.	732 Oct 27 j 06:32	8° \mathcal{B} 25'16	28.82281 AU
direct	724 Dec 26 j 12:16	18° Υ 59'11		direct	733 Jan 13 j 10:11	7° \mathcal{B} 00'17	
conjunction	725 Apr 08 j 08:31	21° Υ 28'20	-1°-48'-53	conjunction	733 Apr 26 j 23:41	9° \mathcal{B} 30'07	-1°-47'-13
minimum elong	725 Apr 08 j 08:31	21° Υ 28'20	1°48'54	minimum elong	733 Apr 26 j 23:41	9° \mathcal{B} 30'07	1°47'15
max. Earth dist.	725 Apr 09 j 06:55	21° Υ 30'26	30.80921 AU	max. Earth dist.	733 Apr 27 j 16:10	9° \mathcal{B} 31'40	30.82159 AU
retrograde	725 Jul 24 j 20:05	24° Υ 03'13		retrograde	733 Aug 12 j 06:10	12° \mathcal{B} 04'35	
opposition	725 Oct 12 j 14:01	22° Υ 37'43	-1°-56'-40	opposition	733 Oct 30 j 09:57	10° \mathcal{B} 39'22	-1°-54'-10
min. Earth dist.	725 Oct 11 j 18:04	22° Υ 39'07	28.81048 AU	min. Earth dist.	733 Oct 29 j 19:13	10° \mathcal{B} 40'25	28.82266 AU
direct	725 Dec 29 j 00:37	21° Υ 14'03		direct	734 Jan 15 j 21:37	9° \mathcal{B} 15'27	
conjunction	726 Apr 10 j 21:59	23° Υ 43'15	-1°-49'-16	conjunction	734 Apr 29 j 14:00	11° \mathcal{B} 45'21	-1°-46'-16
minimum elong	726 Apr 10 j 21:59	23° Υ 43'15	1°49'17	minimum elong	734 Apr 29 j 14:00	11° \mathcal{B} 45'21	1°46'18
max. Earth dist.	726 Apr 11 j 19:08	23° Υ 45'15	30.80954 AU	max. Earth dist.	734 Apr 30 j 06:46	11° \mathcal{B} 46'55	30.82135 AU
retrograde	726 Jul 27 j 09:44	26° Υ 18'06		retrograde	734 Aug 14 j 18:19	14° \mathcal{B} 19'41	
min. Earth dist.	726 Oct 14 j 05:45	24° Υ 54'03	28.81150 AU	opposition	734 Nov 01 j 21:10	12° \mathcal{B} 54'30	-1°-53'-3
opposition	726 Oct 15 j 01:37	24° Υ 52'38	-1°-56'-59	min. Earth dist.	734 Nov 01 j 06:49	12° \mathcal{B} 55'31	28.82234 AU
direct	726 Dec 31 j 10:43	23° Υ 28'57		direct	735 Jan 18 j 10:43	11° \mathcal{B} 30'31	
conjunction	727 Apr 13 j 11:40	25° Υ 58'15	-1°-49'-29	conjunction	735 May 02 j 04:00	14° \mathcal{B} 00'27	-1°-45'-10
minimum elong	727 Apr 13 j 11:40	25° Υ 58'15	1°49'29	minimum elong	735 May 02 j 04:00	14° \mathcal{B} 00'27	1°45'10
max. Earth dist.	727 Apr 14 j 09:29	26° Υ 00'18	30.81108 AU	max. Earth dist.	735 May 02 j 19:01	14° \mathcal{B} 01'52	30.82128 AU
retrograde	727 Jul 29 j 21:32	28° Υ 33'04			735 May 29 j 07:56	15° \mathcal{B}	
opposition	727 Oct 17 j 13:08	27° Υ 07'39	-1°-57'-7	retrograde	735 Aug 17 j 07:57	16° \mathcal{B} 34'41	
min. Earth dist.	727 Oct 16 j 18:06	27° Υ 09'00	28.81354 AU	opposition	735 Nov 04 j 08:16	15° \mathcal{B} 09'30	-1°-51'-47
direct	728 Jan 02 j 21:15	25° Υ 43'58		min. Earth dist.	735 Nov 03 j 18:21	15° \mathcal{B} 10'29	28.82261 AU
conjunction	728 Apr 15 j 01:22	28° Υ 13'21	-1°-49'-31		735 Nov 09 j 22:40	15° \mathcal{R} \mathcal{B}	
minimum elong	728 Apr 15 j 01:22	28° Υ 13'21	1°49'33	direct	736 Jan 20 j 21:38	13° \mathcal{B} 45'27	
max. Earth dist.	728 Apr 15 j 22:12	28° Υ 15'19	30.81367 AU		736 Mar 29 j 15:07	15° \mathcal{B}	
retrograde	728 Jun 06 j 03:30	0° \mathcal{B}		conjunction	736 May 03 j 18:10	16° \mathcal{B} 15'28	-1°-43'-53
	728 Jul 31 j 11:04	0° \mathcal{B} 48'09		minimum elong	736 May 03 j 18:11	16° \mathcal{B} 15'28	1°43'54
	728 Sep 26 j 06:56	30° \mathcal{R} Υ		max. Earth dist.	736 May 04 j 09:39	16° \mathcal{B} 16'55	30.82192 AU
min. Earth dist.	728 Oct 18 j 05:20	29° Υ 24'09	28.81639 AU	retrograde	736 Aug 18 j 19:03	18° \mathcal{B} 49'35	
opposition	728 Oct 19 j 00:37	29° Υ 22'48	-1°-57'-4	opposition	736 Nov 05 j 19:20	17° \mathcal{B} 24'25	-1°-50'-20
direct	729 Jan 04 j 08:42	27° Υ 59'06		min. Earth dist.	736 Nov 05 j 06:23	17° \mathcal{B} 25'20	28.82373 AU
	729 Apr 04 j 21:03	0° \mathcal{B}		direct	737 Jan 22 j 08:43	16° \mathcal{B} 00'19	
conjunction	729 Apr 17 j 15:12	0° \mathcal{B} 28'35	-1°-49'-24	conjunction	737 May 06 j 08:13	18° \mathcal{B} 30'23	-1°-42'-28
minimum elong	729 Apr 17 j 15:12	0° \mathcal{B} 28'35	1°49'24	minimum elong	737 May 06 j 08:13	18° \mathcal{B} 30'23	1°42'28
max. Earth dist.	729 Apr 18 j 11:44	0° \mathcal{B} 30'31	30.81653 AU	max. Earth dist.	737 May 06 j 22:27	18° \mathcal{B} 31'43	30.82375 AU
retrograde	729 Aug 02 j 23:18	3° \mathcal{B} 03'22		retrograde	737 Aug 21 j 07:30	21° \mathcal{B} 04'24	
opposition	729 Oct 21 j 12:15	1° \mathcal{B} 38'03	-1°-56'-51	opposition	737 Nov 08 j 06:19	19° \mathcal{B} 39'17	-1°-48'-44
min. Earth dist.	729 Oct 20 j 18:33	1° \mathcal{B} 39'18	28.81917 AU	min. Earth dist.	737 Nov 07 j 17:07	19° \mathcal{B} 40'13	28.82616 AU
direct	730 Jan 06 j 20:03	0° \mathcal{B} 14'21		direct	738 Jan 24 j 20:25	18° \mathcal{B} 15'07	
conjunction	730 Apr 20 j 05:20	2° \mathcal{B} 43'57	-1°-49'-6	conjunction	738 May 08 j 22:25	20° \mathcal{B} 45'16	-1°-40'-53
minimum elong	730 Apr 20 j 05:21	2° \mathcal{B} 43'57	1°49'07	minimum elong	738 May 08 j 22:25	20° \mathcal{B} 45'16	1°40'53
max. Earth dist.	730 Apr 21 j 01:07	2° \mathcal{B} 45'48	30.81914 AU	max. Earth dist.	738 May 09 j 12:30	20° \mathcal{B} 46'36	30.82678 AU
retrograde	730 Aug 05 j 13:33	5° \mathcal{B} 18'40		retrograde	738 Aug 23 j 18:30	23° \mathcal{B} 19'11	
opposition	730 Oct 23 j 23:36	3° \mathcal{B} 53'25	-1°-56'-26	opposition	738 Nov 10 j 17:16	21° \mathcal{B} 54'07	-1°-46'-57
min. Earth dist.	730 Oct 23 j 05:43	3° \mathcal{B} 54'41	28.82134 AU	min. Earth dist.	738 Nov 10 j 05:26	21° \mathcal{B} 54'58	28.82988 AU
direct	731 Jan 09 j 08:39	2° \mathcal{B} 29'40		direct	739 Jan 27 j 07:09	20° \mathcal{B} 29'56	
conjunction	731 Apr 22 j 19:28	4° \mathcal{B} 59'22	-1°-48'-38	conjunction	739 May 11 j 12:36	23° \mathcal{B} 00'11	-1°-39'-8
minimum elong	731 Apr 22 j 19:28	4° \mathcal{B} 59'22	1°48'39	minimum elong	739 May 11 j 12:36	23° \mathcal{B} 00'11	1°39'09
max. Earth dist.	731 Apr 23 j 13:51	5° \mathcal{B} 01'05	30.82080 AU	max. Earth dist.	739 May 12 j 02:03	23° \mathcal{B} 01'26	30.83133 AU
retrograde	731 Aug 08 j 02:50	7° \mathcal{B} 34'01		retrograde	739 Aug 26 j 07:55	25° \mathcal{B} 33'59	
opposition	731 Oct 26 j 11:14	6° \mathcal{B} 08'48	-1°-55'-51	opposition	739 Nov 13 j 04:10	24° \mathcal{B} 09'00	-1°-45'00
min. Earth dist.	731 Oct 25 j 19:08	6° \mathcal{B} 09'56	28.82255 AU	min. Earth dist.	739 Nov 12 j 15:46	24° \mathcal{B} 09'53	28.83498 AU
direct	732 Jan 11 j 20:03	4° \mathcal{B} 45'01		direct	740 Jan 29 j 18:49	22° \mathcal{B} 44'47	
conjunction	732 Apr 24 j 09:34	7° \mathcal{B} 14'47	-1°-48'-1	conjunction	740 May 13 j 02:36	25° \mathcal{B} 15'08	-1°-37'-15
minimum elong	732 Apr 24 j 09:34	7° \mathcal{B} 14'47	1°48'02	minimum elong	740 May 13 j 02:37	25° \mathcal{B} 15'08	1°37'16
max. Earth dist.	732 Apr 25 j 03:54	7° \mathcal{B} 16'30	30.82159 AU	max. Earth dist.	740 May 13 j 15:11	25° \mathcal{B} 16'19	30.83700 AU
retrograde	732 Aug 09 j 17:00	9° \mathcal{B} 49'20		retrograde	740 Aug 27 j 20:09	27° \mathcal{B} 48'52	

opposition	740 Nov 14 j 15:10	26° 8 23'57	-1°-42'-54	max. Earth dist.	748 Jun 01 j 02:25	13° II 15'01	30.87674 AU
min. Earth dist.	740 Nov 14 j 04:22	26° 8 24'43	28.84110 AU	retrograde	748 Sep 14 j 23:39	15° II 47'03	
direct	741 Jan 31 j 06:05	24° 8 59'45		opposition	748 Dec 02 j 04:59	14° II 22'33	-1°-20'-47
				min. Earth dist.	748 Dec 02 j 00:25	14° II 22'52	28.87955 AU
conjunction	741 May 15 j 17:00	27° 8 30'12	-1°-35'-12	direct	749 Feb 18 j 08:07	12° II 57'52	
minimum elong	741 May 15 j 17:00	27° 8 30'12	1°35'13				
max. Earth dist.	741 May 16 j 05:30	27° 8 31'22	30.84350 AU	conjunction	749 Jun 03 j 11:53	15° II 28'46	-1°-14'00
	741 Aug 15 j 08:19	0° II		minimum elong	749 Jun 03 j 11:53	15° II 28'46	1°14'02
retrograde	741 Aug 30 j 09:46	0° II 03'49		max. Earth dist.	749 Jun 03 j 15:41	15° II 29'07	30.88159 AU
	741 Sep 14 j 13:31	30° R 8		retrograde	749 Sep 17 j 10:05	18° II 01'05	
opposition	741 Nov 17 j 01:53	28° 8 39'00	-1°-40'-38	opposition	749 Dec 04 j 15:27	16° II 36'37	-1°-17'-26
min. Earth dist.	741 Nov 16 j 15:12	28° 8 39'45	28.84759 AU	min. Earth dist.	749 Dec 04 j 12:28	16° II 36'50	28.88501 AU
direct	742 Feb 02 j 19:58	27° 8 14'47		direct	750 Feb 20 j 19:27	15° II 11'52	
conjunction	742 May 18 j 07:25	29° 8 45'21	-1°-33'00	conjunction	750 Jun 06 j 02:08	17° II 42'50	-1°-10'-49
minimum elong	742 May 18 j 07:25	29° 8 45'21	1°33'01	minimum elong	750 Jun 06 j 02:08	17° II 42'50	1°10'50
max. Earth dist.	742 May 18 j 17:58	29° 8 46'20	30.84997 AU	max. Earth dist.	750 Jun 06 j 05:48	17° II 43'10	30.88776 AU
	742 May 24 j 20:32	0° II		retrograde	750 Sep 19 j 22:04	20° II 14'58	
retrograde	742 Sep 01 j 22:54	2° II 18'51		opposition	750 Dec 07 j 01:52	18° II 50'34	-1°-13'-58
opposition	742 Nov 19 j 12:51	0° II 54'07	-1°-38'-13	min. Earth dist.	750 Dec 06 j 22:40	18° II 50'47	28.89177 AU
min. Earth dist.	742 Nov 19 j 03:41	0° II 54'46	28.85390 AU	direct	751 Feb 23 j 08:46	17° II 25'46	
	742 Dec 24 j 01:12	30° R 8					
direct	743 Feb 05 j 07:18	29° 8 29'52		conjunction	751 Jun 08 j 16:02	19° II 56'48	-1°-7'-32
	743 Mar 19 j 20:54	0° II		minimum elong	751 Jun 08 j 16:03	19° II 56'48	1°07'34
				max. Earth dist.	751 Jun 08 j 18:18	19° II 57'00	30.89529 AU
conjunction	743 May 20 j 21:52	2° II 00'32	-1°-30'-40	retrograde	751 Sep 22 j 10:16	22° II 28'48	
minimum elong	743 May 20 j 21:53	2° II 00'32	1°30'41	opposition	751 Dec 09 j 12:21	21° II 04'28	-1°-10'-24
max. Earth dist.	743 May 21 j 08:22	2° II 01'30	30.85591 AU	min. Earth dist.	751 Dec 09 j 10:11	21° II 04'37	28.90010 AU
retrograde	743 Sep 04 j 11:47	4° II 33'54		direct	752 Feb 25 j 19:36	19° II 39'39	
opposition	743 Nov 21 j 23:42	3° II 09'14	-1°-35'-39				
min. Earth dist.	743 Nov 21 j 15:15	3° II 09'50	28.85932 AU	conjunction	752 Jun 10 j 06:12	22° II 10'46	-1°-4'-8
direct	744 Feb 07 j 20:40	1° II 44'57		minimum elong	752 Jun 10 j 06:13	22° II 10'46	1°04'10
				max. Earth dist.	752 Jun 10 j 08:50	22° II 11'00	30.90438 AU
conjunction	744 May 22 j 12:16	4° II 15'41	-1°-28'-12	retrograde	752 Sep 23 j 22:34	24° II 42'37	
minimum elong	744 May 22 j 12:17	4° II 15'41	1°28'13	opposition	752 Dec 10 j 22:39	23° II 18'23	-1°-6'-43
max. Earth dist.	744 May 22 j 20:25	4° II 16'26	30.86101 AU	min. Earth dist.	752 Dec 10 j 20:54	23° II 18'31	28.90968 AU
retrograde	744 Sep 06 j 02:02	6° II 48'54		direct	753 Feb 27 j 08:44	21° II 53'35	
opposition	744 Nov 23 j 10:30	5° II 24'16	-1°-32'-56				
min. Earth dist.	744 Nov 23 j 02:55	5° II 24'49	28.86401 AU	conjunction	753 Jun 12 j 20:16	24° II 24'48	-1°00'-39
direct	745 Feb 09 j 08:46	3° II 59'56		minimum elong	753 Jun 12 j 20:16	24° II 24'48	1°00'40
				max. Earth dist.	753 Jun 12 j 20:54	24° II 24'51	30.91456 AU
conjunction	745 May 25 j 02:49	6° II 30'42	-1°-25'-37	retrograde	753 Sep 26 j 12:33	26° II 56'31	
minimum elong	745 May 25 j 02:49	6° II 30'42	1°25'38	opposition	753 Dec 13 j 09:02	25° II 32'24	-1°-2'-56
max. Earth dist.	745 May 25 j 10:51	6° II 31'27	30.86529 AU	min. Earth dist.	753 Dec 13 j 07:54	25° II 32'29	28.92017 AU
retrograde	745 Sep 08 j 12:38	9° II 03'45		direct	754 Mar 01 j 20:42	24° II 07'37	
opposition	745 Nov 25 j 21:18	7° II 39'09	-1°-30'-5				
min. Earth dist.	745 Nov 25 j 15:12	7° II 39'36	28.86784 AU	conjunction	754 Jun 15 j 10:31	26° II 38'56	0°-57'-4
direct	746 Feb 11 j 21:11	6° II 14'44		minimum elong	754 Jun 15 j 10:31	26° II 38'56	0°57'04
				max. Earth dist.	754 Jun 15 j 11:17	26° II 39'00	30.92514 AU
conjunction	746 May 27 j 17:12	8° II 45'32	-1°-22'-53	retrograde	754 Sep 28 j 23:20	29° II 10'32	
minimum elong	746 May 27 j 17:12	8° II 45'32	1°22'54	opposition	754 Dec 15 j 19:27	27° II 46'32	0°-59'-3
max. Earth dist.	746 May 27 j 23:20	8° II 46'07	30.86904 AU	min. Earth dist.	754 Dec 15 j 19:47	27° II 46'31	28.93067 AU
retrograde	746 Sep 11 j 01:02	11° II 18'24		direct	755 Mar 04 j 08:54	26° II 21'46	
opposition	746 Nov 28 j 07:51	9° II 53'50	-1°-27'-7				
min. Earth dist.	746 Nov 28 j 01:57	9° II 54'15	28.87143 AU	conjunction	755 Jun 18 j 00:36	28° II 53'09	0°-53'-23
direct	747 Feb 14 j 09:14	8° II 29'19		minimum elong	755 Jun 18 j 00:37	28° II 53'09	0°53'25
				max. Earth dist.	755 Jun 17 j 23:22	28° II 53'03	30.93557 AU
conjunction	747 May 30 j 07:34	11° II 00'10	-1°-20'-3		755 Jul 18 j 23:13	0° III	
minimum elong	747 May 30 j 07:34	11° II 00'10	1°20'04	retrograde	755 Oct 01 j 12:25	1° III 24'37	
max. Earth dist.	747 May 30 j 13:20	11° II 00'42	30.87262 AU	opposition	755 Dec 18 j 05:50	0° III 00'44	0°-55'-5
retrograde	747 Sep 13 j 11:37	13° II 32'50		min. Earth dist.	755 Dec 18 j 06:26	0° III 00'42	28.94079 AU
opposition	747 Nov 30 j 18:32	12° II 08'18	-1°-24'00		755 Dec 18 j 16:18	30° R II	
min. Earth dist.	747 Nov 30 j 14:17	12° II 08'36	28.87516 AU	direct	756 Mar 05 j 20:41	28° II 35'58	
direct	748 Feb 16 j 20:05	10° II 43'42			756 May 19 j 08:06	0° III	
conjunction	748 May 31 j 21:40	13° II 14'34	-1°-17'-5	conjunction	756 Jun 19 j 14:44	1° III 07'26	0°-49'-39
minimum elong	748 May 31 j 21:40	13° II 14'34	1°17'05	minimum elong	756 Jun 19 j 14:44	1° III 07'26	0°49'39

max. Earth dist.	756 Jun 19 j 13:00	1°☾07'16	30.94521 AU	min. Earth dist.	765 Jan 06 j 10:01	20°☾02'46	29.01778 AU
retrograde	756 Oct 02 j 23:31	3°☾38'45		direct	765 Mar 26 j 09:38	18°☾38'08	
opposition	756 Dec 19 j 16:25	2°☾14'57	0°-51'-2				
min. Earth dist.	756 Dec 19 j 18:58	2°☾14'46	28.94994 AU	conjunction	765 Jul 10 j 18:44	21°☾09'51	0°-13'-28
direct	757 Mar 08 j 07:27	0°☾50'09		minimum elong	765 Jul 10 j 18:44	21°☾09'51	0°13'29
				behind sun begin	765 Jul 10 j 15:12	21°☾09'32	
conjunction	757 Jun 22 j 04:55	3°☾21'40	0°-45'-49	behind sun end	765 Jul 10 j 22:17	21°☾10'10	
minimum elong	757 Jun 22 j 04:55	3°☾21'40	0°45'51	max. Earth dist.	765 Jul 10 j 09:19	21°☾08'59	31.02367 AU
max. Earth dist.	757 Jun 22 j 01:32	3°☾21'21	30.95398 AU	retrograde	765 Oct 23 j 04:18	23°☾39'33	
retrograde	757 Oct 05 j 11:06	5°☾52'48		opposition	766 Jan 08 j 12:45	22°☾16'19	0°-12'-8
opposition	757 Dec 22 j 02:40	4°☾29'06	0°-46'-55	min. Earth dist.	766 Jan 08 j 21:54	22°☾15'40	29.02986 AU
min. Earth dist.	757 Dec 22 j 05:17	4°☾28'55	28.95815 AU	direct	766 Mar 28 j 20:58	20°☾51'10	
direct	758 Mar 10 j 19:21	3°☾04'15					
				conjunction	766 Jul 13 j 08:12	23°☾22'56	0°-9'-17
conjunction	758 Jun 24 j 19:02	5°☾35'48	0°-41'-56	minimum elong	766 Jul 13 j 08:12	23°☾22'56	0°09'17
minimum elong	758 Jun 24 j 19:02	5°☾35'48	0°41'57	behind sun begin	766 Jul 13 j 02:41	23°☾22'26	
max. Earth dist.	758 Jun 24 j 14:24	5°☾35'22	30.96178 AU	behind sun end	766 Jul 13 j 13:42	23°☾23'25	
retrograde	758 Oct 07 j 20:42	8°☾06'46		max. Earth dist.	766 Jul 12 j 21:34	23°☾21'57	31.03606 AU
opposition	758 Dec 24 j 13:10	6°☾43'06	0°-42'-44	retrograde	766 Oct 25 j 15:47	25°☾52'29	
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direct	759 Mar 13 j 06:46	5°☾18'12		min. Earth dist.	767 Jan 11 j 07:53	24°☾28'44	29.04223 AU
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conjunction	759 Jun 27 j 08:54	7°☾49'47	0°-38'00				
minimum elong	759 Jun 27 j 08:54	7°☾49'47	0°38'01	conjunction	767 Jul 15 j 21:30	25°☾36'03	0°-5'-5
max. Earth dist.	759 Jun 27 j 03:44	7°☾49'18	30.96913 AU	minimum elong	767 Jul 15 j 21:30	25°☾36'03	0°05'07
retrograde	759 Oct 10 j 07:39	10°☾20'33		behind sun begin	767 Jul 15 j 15:07	25°☾35'29	
opposition	759 Dec 26 j 23:26	8°☾56'56	0°-38'-30	behind sun end	767 Jul 16 j 03:54	25°☾36'37	
min. Earth dist.	759 Dec 27 j 04:04	8°☾56'37	28.97277 AU	max. Earth dist.	767 Jul 15 j 10:02	25°☾35'00	31.04823 AU
direct	760 Mar 14 j 19:36	7°☾31'58		retrograde	767 Oct 28 j 01:38	28°☾05'29	
				opposition	768 Jan 13 j 09:25	26°☾42'27	0°-3'-9
conjunction	760 Jun 28 j 22:43	10°☾03'33	0°-34'00	min. Earth dist.	768 Jan 13 j 20:06	26°☾41'42	29.05421 AU
minimum elong	760 Jun 28 j 22:43	10°☾03'34	0°34'01	direct	768 Apr 01 j 19:42	25°☾17'20	
max. Earth dist.	760 Jun 28 j 15:54	10°☾02'56	30.97626 AU				
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opposition	760 Dec 28 j 09:38	11°☾10'34	0°-34'-12	minimum elong	768 Jul 17 j 10:58	27°☾49'11	0°00'51
min. Earth dist.	760 Dec 28 j 15:34	11°☾10'08	28.98009 AU	behind sun begin	768 Jul 17 j 04:24	27°☾48'36	
direct	761 Mar 17 j 06:12	9°☾45'31		behind sun end	768 Jul 17 j 17:33	27°☾49'46	
				max. Earth dist.	768 Jul 16 j 22:47	27°☾48'04	31.05978 AU
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minimum elong	761 Jul 01 j 12:36	12°☾17'08	0°29'59		768 Sep 26 j 11:32	0°♂	
max. Earth dist.	761 Jul 01 j 05:57	12°☾16'31	30.98377 AU	retrograde	768 Oct 29 j 12:29	0°♂18'28	
retrograde	761 Oct 14 j 05:50	14°☾47'30			768 Dec 02 j 00:44	30°♀☾	
opposition	761 Dec 30 j 19:52	13°☾23'58	0°-29'-52	opposition	769 Jan 14 j 19:39	28°☾55'33	0°01'21
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conjunction	762 Jul 04 j 02:08	14°☾30'30	0°-25'-53	max. Earth dist.	769 Jul 19 j 10:25	0°♂01'01	31.07008 AU
minimum elong	762 Jul 04 j 02:08	14°☾30'30	0°25'54				
max. Earth dist.	762 Jul 03 j 17:39	14°☾29'43	30.99194 AU	conjunction	769 Jul 20 j 00:24	0°♂02'18	0°03'28
retrograde	762 Oct 16 j 18:23	17°☾00'41		minimum elong	769 Jul 20 j 00:24	0°♂02'18	0°03'27
opposition	763 Jan 02 j 06:03	15°☾37'12	0°-25'-29	behind sun begin	769 Jul 19 j 17:51	0°♂01'43	
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conjunction	763 Jul 06 j 15:46	16°☾43'42	0°-21'-46	min. Earth dist.	770 Jan 17 j 18:29	1°♂07'43	29.07493 AU
minimum elong	763 Jul 06 j 15:46	16°☾43'42	0°21'48		770 Mar 05 j 14:22	30°♀☾	
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min. Earth dist.	764 Jan 05 j 00:05	17°☾49'44	29.00652 AU	conjunction	770 Jul 22 j 13:42	2°♂15'20	0°07'39
direct	764 Mar 23 j 21:10	16°☾25'07		minimum elong	770 Jul 22 j 13:42	2°♂15'20	0°07'40
				behind sun begin	770 Jul 22 j 07:46	2°♂14'48	
conjunction	764 Jul 08 j 05:08	18°☾56'47	0°-17'-38	behind sun end	770 Jul 22 j 19:38	2°♂15'52	
minimum elong	764 Jul 08 j 05:08	18°☾56'47	0°17'38	max. Earth dist.	770 Jul 21 j 23:39	2°♂14'03	31.07919 AU
max. Earth dist.	764 Jul 07 j 19:37	18°☾55'55	31.01197 AU	retrograde	770 Nov 03 j 09:33	4°♂44'19	
retrograde	764 Oct 20 j 17:33	21°☾26'38		opposition	771 Jan 19 j 16:30	3°♂21'31	0°10'20
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





























































































































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max. Earth dist.	771 Jul 24 j 10:40	4°Ω26'46	31.08721 AU	min. Earth dist.	779 Feb 06 j 20:14	20°Ω58'38	29.15147 AU
				direct	779 Apr 27 j 06:57	19°Ω34'34	
conjunction	771 Jul 25 j 02:48	4°Ω28'15	0°11'49				
minimum elong	771 Jul 25 j 02:47	4°Ω28'15	0°11'49	conjunction	779 Aug 12 j 07:39	22°Ω06'27	0°44'01
behind sun begin	771 Jul 24 j 22:16	4°Ω27'51		minimum elong	779 Aug 12 j 07:39	22°Ω06'27	0°44'00
behind sun end	771 Jul 25 j 07:19	4°Ω28'39		max. Earth dist.	779 Aug 11 j 12:50	22°Ω04'42	31.15664 AU
retrograde	771 Nov 05 j 21:35	6°Ω57'05		retrograde	779 Nov 23 j 07:37	24°Ω34'14	
opposition	772 Jan 22 j 02:47	5°Ω34'18	0°14'47	opposition	780 Feb 08 j 13:30	23°Ω11'56	0°49'01
min. Earth dist.	772 Jan 22 j 16:27	5°Ω33'21	29.09110 AU	min. Earth dist.	780 Feb 09 j 07:10	23°Ω10'42	29.16236 AU
direct	772 Apr 10 j 20:12	4°Ω09'05		direct	780 Apr 28 j 19:33	21°Ω46'41	
conjunction	772 Jul 26 j 15:53	6°Ω41'00	0°15'59	conjunction	780 Aug 13 j 19:54	24°Ω18'35	0°47'48
minimum elong	772 Jul 26 j 15:53	6°Ω41'00	0°15'59	minimum elong	780 Aug 13 j 19:53	24°Ω18'35	0°47'49
max. Earth dist.	772 Jul 26 j 00:01	6°Ω39'32	31.09450 AU	max. Earth dist.	780 Aug 12 j 23:19	24°Ω16'41	31.16723 AU
retrograde	772 Nov 07 j 07:22	9°Ω09'40		retrograde	780 Nov 24 j 19:18	26°Ω46'18	
opposition	773 Jan 23 j 13:10	7°Ω46'56	0°19'13	opposition	781 Feb 10 j 00:00	25°Ω24'02	0°53'01
min. Earth dist.	773 Jan 24 j 04:11	7°Ω45'53	29.09809 AU	min. Earth dist.	781 Feb 10 j 17:57	25°Ω22'47	29.17264 AU
direct	773 Apr 13 j 08:47	6°Ω21'40		direct	781 May 01 j 06:34	23°Ω58'49	
max. Earth dist.	773 Jul 28 j 11:09	8°Ω51'56	31.10140 AU				
				conjunction	781 Aug 16 j 08:15	26°Ω30'43	0°51'31
conjunction	773 Jul 29 j 04:44	8°Ω53'34	0°20'06	minimum elong	781 Aug 16 j 08:15	26°Ω30'43	0°51'31
minimum elong	773 Jul 29 j 04:44	8°Ω53'34	0°20'06	max. Earth dist.	781 Aug 15 j 12:03	26°Ω28'50	31.17685 AU
retrograde	773 Nov 09 j 19:51	11°Ω22'04		retrograde	781 Nov 27 j 04:58	28°Ω58'19	
opposition	774 Jan 25 j 23:21	9°Ω59'22	0°23'37	opposition	782 Feb 12 j 10:40	27°Ω36'07	0°56'57
min. Earth dist.	774 Jan 26 j 14:11	9°Ω58'19	29.10503 AU	min. Earth dist.	782 Feb 13 j 05:56	27°Ω34'47	29.18170 AU
direct	774 Apr 15 j 22:03	8°Ω34'04		direct	782 May 03 j 18:36	26°Ω10'54	
conjunction	774 Jul 31 j 17:34	11°Ω05'56	0°24'12	conjunction	782 Aug 18 j 20:22	28°Ω42'46	0°55'09
minimum elong	774 Jul 31 j 17:34	11°Ω05'56	0°24'13	minimum elong	782 Aug 18 j 20:22	28°Ω42'46	0°55'10
max. Earth dist.	774 Jul 31 j 00:19	11°Ω04'21	31.10840 AU	max. Earth dist.	782 Aug 17 j 22:30	28°Ω40'44	31.18534 AU
retrograde	774 Nov 12 j 06:10	13°Ω34'18			782 Sep 24 j 04:11	0°♊	
opposition	775 Jan 28 j 09:48	12°Ω11'37	0°27'59	retrograde	782 Nov 29 j 17:25	1°♊10'16	
min. Earth dist.	775 Jan 29 j 01:59	12°Ω10'29	29.11239 AU		783 Feb 07 j 17:30	30°♋	
direct	775 Apr 18 j 10:13	10°Ω46'18		opposition	783 Feb 14 j 21:16	29°Ω48'05	1°00'48
max. Earth dist.	775 Aug 02 j 11:55	13°Ω16'29	31.11619 AU	min. Earth dist.	783 Feb 15 j 16:16	29°Ω46'46	29.18964 AU
				direct	783 May 06 j 08:11	28°Ω22'52	
conjunction	775 Aug 03 j 05:58	13°Ω18'09	0°28'16		783 Jul 27 j 06:11	0°♊	
minimum elong	775 Aug 03 j 05:57	13°Ω18'09	0°28'15	max. Earth dist.	783 Aug 20 j 10:45	0°♊52'42	31.19257 AU
	775 Sep 22 j 09:55	15°Ω					
retrograde	775 Nov 14 j 16:42	15°Ω46'21		conjunction	783 Aug 21 j 08:23	0°♊54'42	0°58'43
	776 Jan 08 j 11:41	15°♋		minimum elong	783 Aug 21 j 08:23	0°♊54'42	0°58'42
opposition	776 Jan 30 j 20:03	14°Ω23'44	0°32'18	retrograde	783 Dec 02 j 03:24	3°♊22'05	
min. Earth dist.	776 Jan 31 j 11:30	14°Ω22'39	29.12064 AU	opposition	784 Feb 17 j 07:59	1°♊59'55	1°04'33
direct	776 Apr 19 j 23:01	12°Ω58'23		min. Earth dist.	784 Feb 18 j 04:33	1°♊58'29	29.19637 AU
	776 Jul 22 j 02:31	15°Ω		direct	784 May 07 j 20:49	0°♊34'41	
conjunction	776 Aug 04 j 18:31	15°Ω30'15	0°32'17	conjunction	784 Aug 22 j 20:19	3°♊06'27	1°02'11
minimum elong	776 Aug 04 j 18:31	15°Ω30'15	0°32'17	minimum elong	784 Aug 22 j 20:19	3°♊06'27	1°02'11
max. Earth dist.	776 Aug 04 j 00:11	15°Ω28'33	31.12491 AU	max. Earth dist.	784 Aug 21 j 21:38	3°♊04'21	31.19881 AU
retrograde	776 Nov 16 j 01:59	17°Ω58'19		retrograde	784 Dec 03 j 14:00	5°♊33'42	
opposition	777 Feb 01 j 06:21	16°Ω35'46	0°36'34	opposition	785 Feb 18 j 18:25	4°♊11'33	1°08'12
min. Earth dist.	777 Feb 01 j 22:59	16°Ω34'36	29.13006 AU	min. Earth dist.	785 Feb 19 j 14:30	4°♊10'09	29.20215 AU
direct	777 Apr 22 j 09:27	15°Ω10'26		direct	785 May 10 j 10:09	2°♊46'16	
				max. Earth dist.	785 Aug 24 j 09:08	5°♊15'52	31.20419 AU
conjunction	777 Aug 07 j 07:02	17°Ω42'17	0°36'15				
minimum elong	777 Aug 07 j 07:01	17°Ω42'17	0°36'14	conjunction	785 Aug 25 j 08:11	5°♊18'00	1°05'33
max. Earth dist.	777 Aug 06 j 12:39	17°Ω40'35	31.13490 AU	minimum elong	785 Aug 25 j 08:10	5°♊18'00	1°05'33
retrograde	777 Nov 18 j 12:18	20°Ω10'15		retrograde	785 Dec 05 j 23:39	7°♊45'07	
opposition	778 Feb 03 j 16:41	18°Ω47'47	0°40'47	opposition	786 Feb 21 j 05:09	6°♊22'58	1°11'45
min. Earth dist.	778 Feb 04 j 09:00	18°Ω46'38	29.14042 AU	min. Earth dist.	786 Feb 22 j 02:26	6°♊21'29	29.20746 AU
direct	778 Apr 24 j 20:59	17°Ω22'28		direct	786 May 12 j 21:34	4°♊57'40	
conjunction	778 Aug 09 j 19:16	19°Ω54'21	0°40'09	conjunction	786 Aug 27 j 19:41	7°♊29'19	1°08'50
minimum elong	778 Aug 09 j 19:16	19°Ω54'21	0°40'10	minimum elong	786 Aug 27 j 19:40	7°♊29'19	1°08'50
max. Earth dist.	778 Aug 08 j 23:58	19°Ω52'33	31.14559 AU	max. Earth dist.	786 Aug 26 j 20:47	7°♊27'11	31.20941 AU
retrograde	778 Nov 20 j 22:19	22°Ω22'14		retrograde	786 Dec 08 j 09:14	9°♊56'19	

opposition	787 Feb 23 j 15:47	8° \mathring{M} 34'10	1°15'12	max. Earth dist.	795 Sep 16 j 00:43	27° \mathring{M} 07'00	31.27611 AU
min. Earth dist.	787 Feb 24 j 12:37	8° \mathring{M} 32'43	29.21272 AU				
direct	787 May 15 j 10:19	7° \mathring{M} 08'51		conjunction	795 Sep 17 j 00:02	27° \mathring{M} 09'11	1°33'16
max. Earth dist.	787 Aug 29 j 07:32	9° \mathring{M} 38'14	31.21484 AU	minimum elong	795 Sep 17 j 00:02	27° \mathring{M} 09'11	1°33'15
				retrograde	795 Dec 28 j 05:50	29° \mathring{M} 35'50	
conjunction	787 Aug 30 j 07:05	9° \mathring{M} 40'25	1°12'00	opposition	796 Mar 14 j 17:41	28° \mathring{M} 14'04	1°40'44
minimum elong	787 Aug 30 j 07:04	9° \mathring{M} 40'25	1°11'59	min. Earth dist.	796 Mar 15 j 15:31	28° \mathring{M} 12'34	29.27954 AU
retrograde	787 Dec 10 j 18:35	12° \mathring{M} 07'20		direct	796 Jun 03 j 20:42	26° \mathring{M} 49'07	
opposition	788 Feb 26 j 02:19	10° \mathring{M} 45'11	1°18'32	max. Earth dist.	796 Sep 17 j 10:42	29° \mathring{M} 18'11	31.28053 AU
min. Earth dist.	788 Feb 26 j 23:33	10° \mathring{M} 43'43	29.21868 AU				
direct	788 May 16 j 20:41	9° \mathring{M} 19'51		conjunction	796 Sep 18 j 10:56	29° \mathring{M} 20'27	1°35'21
				minimum elong	796 Sep 18 j 10:56	29° \mathring{M} 20'27	1°35'22
conjunction	788 Aug 31 j 18:30	11° \mathring{M} 51'23	1°15'04		796 Oct 06 j 07:38	0° \mathring{M}	
minimum elong	788 Aug 31 j 18:30	11° \mathring{M} 51'23	1°15'04	retrograde	796 Dec 29 j 15:18	1° \mathring{M} 47'04	
max. Earth dist.	788 Aug 30 j 19:57	11° \mathring{M} 49'17	31.22118 AU	opposition	797 Mar 17 j 04:55	0° \mathring{M} 25'17	1°42'54
retrograde	788 Dec 12 j 03:02	14° \mathring{M} 18'13		min. Earth dist.	797 Mar 18 j 03:15	0° \mathring{M} 23'45	29.28344 AU
opposition	789 Feb 27 j 13:05	12° \mathring{M} 56'05	1°21'45		797 Apr 01 j 18:52	30° \mathring{R} \mathring{M}	
min. Earth dist.	789 Feb 28 j 10:14	12° \mathring{M} 54'37	29.22549 AU	direct	797 Jun 06 j 07:36	29° \mathring{M} 00'21	
direct	789 May 19 j 08:56	11° \mathring{M} 30'46			797 Aug 07 j 21:56	0° \mathring{M}	
max. Earth dist.	789 Sep 02 j 06:08	14° \mathring{M} 00'05	31.22855 AU				
				conjunction	797 Sep 20 j 21:44	1° \mathring{M} 31'36	1°37'18
conjunction	789 Sep 03 j 05:40	14° \mathring{M} 02'16	1°18'02	minimum elong	797 Sep 20 j 21:43	1° \mathring{M} 31'36	1°37'18
minimum elong	789 Sep 03 j 05:39	14° \mathring{M} 02'16	1°18'01	max. Earth dist.	797 Sep 19 j 22:24	1° \mathring{M} 29'25	31.28378 AU
retrograde	789 Dec 14 j 14:06	16° \mathring{M} 29'03		retrograde	797 Dec 31 j 23:08	3° \mathring{M} 58'10	
opposition	790 Mar 01 j 23:46	15° \mathring{M} 06'58	1°24'52	opposition	798 Mar 19 j 16:13	2° \mathring{M} 36'23	1°44'54
min. Earth dist.	790 Mar 02 j 20:22	15° \mathring{M} 05'33	29.23351 AU	min. Earth dist.	798 Mar 20 j 14:41	2° \mathring{M} 34'50	29.28615 AU
direct	790 May 21 j 19:01	13° \mathring{M} 41'42		direct	798 Jun 08 j 20:07	1° \mathring{M} 11'27	
				max. Earth dist.	798 Sep 22 j 07:56	3° \mathring{M} 40'19	31.28618 AU
conjunction	790 Sep 05 j 16:56	16° \mathring{M} 13'11	1°20'52				
minimum elong	790 Sep 05 j 16:55	16° \mathring{M} 13'11	1°20'53	conjunction	798 Sep 23 j 08:16	3° \mathring{M} 42'35	1°39'07
max. Earth dist.	790 Sep 04 j 18:35	16° \mathring{M} 11'06	31.23699 AU	minimum elong	798 Sep 23 j 08:16	3° \mathring{M} 42'35	1°39'08
retrograde	790 Dec 16 j 23:31	18° \mathring{M} 39'57		retrograde	799 Jan 03 j 09:55	6° \mathring{M} 09'07	
opposition	791 Mar 04 j 10:39	17° \mathring{M} 17'55	1°27'50	opposition	799 Mar 22 j 03:24	4° \mathring{M} 47'17	1°46'46
min. Earth dist.	791 Mar 05 j 07:57	17° \mathring{M} 16'27	29.24231 AU	min. Earth dist.	799 Mar 23 j 01:18	4° \mathring{M} 45'47	29.28844 AU
direct	791 May 24 j 06:16	15° \mathring{M} 52'43		direct	799 Jun 11 j 06:09	3° \mathring{M} 22'21	
max. Earth dist.	791 Sep 07 j 04:36	18° \mathring{M} 22'01	31.24604 AU				
				conjunction	799 Sep 25 j 18:45	5° \mathring{M} 53'23	1°40'47
conjunction	791 Sep 08 j 03:52	18° \mathring{M} 24'11	1°23'36	minimum elong	799 Sep 25 j 18:45	5° \mathring{M} 53'23	1°40'47
minimum elong	791 Sep 08 j 03:52	18° \mathring{M} 24'11	1°23'36	max. Earth dist.	799 Sep 24 j 19:42	5° \mathring{M} 51'14	31.28829 AU
retrograde	791 Dec 19 j 11:52	20° \mathring{M} 50'56		retrograde	800 Jan 05 j 18:24	8° \mathring{M} 19'53	
opposition	792 Mar 05 j 21:25	19° \mathring{M} 28'59	1°30'41	opposition	800 Mar 23 j 14:45	6° \mathring{M} 58'01	1°48'28
min. Earth dist.	792 Mar 06 j 17:58	19° \mathring{M} 27'34	29.25141 AU	min. Earth dist.	800 Mar 24 j 13:11	6° \mathring{M} 56'29	29.29060 AU
direct	792 May 25 j 18:59	18° \mathring{M} 03'51		direct	800 Jun 12 j 18:07	5° \mathring{M} 33'04	
				max. Earth dist.	800 Sep 26 j 05:25	8° \mathring{M} 01'48	31.29067 AU
conjunction	792 Sep 09 j 15:04	20° \mathring{M} 35'19	1°26'12				
minimum elong	792 Sep 09 j 15:04	20° \mathring{M} 35'19	1°26'13	conjunction	800 Sep 27 j 05:01	8° \mathring{M} 04'01	1°42'18
max. Earth dist.	792 Sep 08 j 16:27	20° \mathring{M} 33'13	31.25489 AU	minimum elong	800 Sep 27 j 05:01	8° \mathring{M} 04'01	1°42'18
retrograde	792 Dec 20 j 22:15	23° \mathring{M} 02'04		retrograde	801 Jan 07 j 05:41	10° \mathring{M} 30'29	
opposition	793 Mar 08 j 08:23	21° \mathring{M} 40'10	1°33'24	opposition	801 Mar 26 j 01:56	9° \mathring{M} 08'35	1°50'01
min. Earth dist.	793 Mar 09 j 06:12	21° \mathring{M} 38'40	29.26007 AU	min. Earth dist.	801 Mar 26 j 23:05	9° \mathring{M} 07'08	29.29334 AU
direct	793 May 28 j 06:50	20° \mathring{M} 15'06		direct	801 Jun 15 j 06:18	7° \mathring{M} 43'39	
max. Earth dist.	793 Sep 11 j 02:55	22° \mathring{M} 44'24	31.26316 AU				
				conjunction	801 Sep 29 j 15:23	10° \mathring{M} 14'31	1°43'41
conjunction	793 Sep 12 j 02:08	22° \mathring{M} 46'34	1°28'41	minimum elong	801 Sep 29 j 15:23	10° \mathring{M} 14'31	1°43'40
minimum elong	793 Sep 12 j 02:07	22° \mathring{M} 46'34	1°28'41	max. Earth dist.	801 Sep 28 j 16:58	10° \mathring{M} 12'25	31.29375 AU
retrograde	793 Dec 23 j 09:15	25° \mathring{M} 13'17		retrograde	802 Jan 09 j 15:35	12° \mathring{M} 40'59	
opposition	794 Mar 10 j 19:26	23° \mathring{M} 51'27	1°35'59	opposition	802 Mar 28 j 13:27	11° \mathring{M} 19'04	1°51'25
min. Earth dist.	794 Mar 11 j 16:28	23° \mathring{M} 50'00	29.26783 AU	min. Earth dist.	802 Mar 29 j 11:07	11° \mathring{M} 17'35	29.29694 AU
direct	794 May 30 j 19:46	22° \mathring{M} 26'26		direct	802 Jun 17 j 17:17	9° \mathring{M} 54'11	
				max. Earth dist.	802 Oct 01 j 03:13	12° \mathring{M} 22'54	31.29784 AU
conjunction	794 Sep 14 j 13:03	24° \mathring{M} 57'52	1°31'03				
minimum elong	794 Sep 14 j 13:03	24° \mathring{M} 57'52	1°31'03	conjunction	802 Oct 02 j 01:24	12° \mathring{M} 24'58	1°44'54
max. Earth dist.	794 Sep 13 j 13:38	24° \mathring{M} 55'41	31.27023 AU	minimum elong	802 Oct 02 j 01:24	12° \mathring{M} 24'58	1°44'55
retrograde	794 Dec 25 j 19:46	27° \mathring{M} 24'34		retrograde	803 Jan 12 j 02:30	14° \mathring{M} 51'27	
opposition	795 Mar 13 j 06:40	26° \mathring{M} 02'46	1°38'26	opposition	803 Mar 31 j 00:48	13° \mathring{M} 29'33	1°52'39
min. Earth dist.	795 Mar 14 j 04:46	26° \mathring{M} 01'15	29.27441 AU	min. Earth dist.	803 Mar 31 j 21:00	13° \mathring{M} 28'10	29.30130 AU
direct	795 Jun 02 j 07:28	24° \mathring{M} 37'48		direct	803 Jun 20 j 06:07	12° \mathring{M} 04'43	

conjunction	803 Oct 04 j 11:33	14° 2 35'28	1°45'59		811 Aug 19 j 21:46	0° 0	
minimum elong	803 Oct 04 j 11:33	14° 2 35'28	1°45'59				
max. Earth dist.	803 Oct 03 j 13:42	14° 2 33'25	31.30241 AU	conjunction	811 Oct 21 j 19:15	2° 0 01'18	1°49'01
retrograde	804 Jan 14 j 13:33	17° 2 01'58		minimum elong	811 Oct 21 j 19:15	2° 0 01'18	1°49'01
opposition	804 Apr 01 j 12:12	15° 2 40'06	1°53'43	max. Earth dist.	811 Oct 20 j 23:41	1° 0 59'28	31.31016 AU
min. Earth dist.	804 Apr 02 j 08:57	15° 2 38'41	29.30608 AU	retrograde	812 Jan 31 j 23:12	4° 0 28'08	
direct	804 Jun 21 j 17:43	14° 2 15'20		opposition	812 Apr 19 j 10:47	3° 0 06'09	1°56'19
				min. Earth dist.	812 Apr 20 j 04:58	3° 0 04'55	29.30970 AU
conjunction	804 Oct 05 j 21:43	16° 2 46'02	1°46'54	direct	812 Jul 09 j 15:52	1° 0 41'42	
minimum elong	804 Oct 05 j 21:43	16° 2 46'02	1°46'55	max. Earth dist.	812 Oct 22 j 09:43	4° 0 10'01	31.30684 AU
max. Earth dist.	804 Oct 05 j 00:38	16° 2 44'04	31.30716 AU				
retrograde	805 Jan 15 j 23:48	19° 2 12'34		conjunction	812 Oct 23 j 04:51	4° 0 11'48	1°48'42
opposition	805 Apr 03 j 23:47	17° 2 50'44	1°54'37	minimum elong	812 Oct 23 j 04:52	4° 0 11'48	1°48'43
min. Earth dist.	805 Apr 04 j 19:49	17° 2 49'22	29.31054 AU	retrograde	813 Feb 02 j 10:42	6° 0 38'42	
direct	805 Jun 24 j 07:07	16° 2 26'03		opposition	813 Apr 21 j 22:53	5° 0 16'39	1°55'54
max. Earth dist.	805 Oct 07 j 10:09	18° 2 54'41	31.31128 AU	min. Earth dist.	813 Apr 22 j 17:09	5° 0 15'24	29.30667 AU
				direct	813 Jul 12 j 03:56	3° 0 52'13	
conjunction	805 Oct 08 j 07:40	18° 2 56'42	1°47'40				
minimum elong	805 Oct 08 j 07:40	18° 2 56'42	1°47'40	conjunction	813 Oct 25 j 14:18	6° 0 22'13	1°48'14
retrograde	806 Jan 18 j 10:07	21° 2 23'18		minimum elong	813 Oct 25 j 14:18	6° 0 22'13	1°48'14
opposition	806 Apr 06 j 11:34	20° 2 01'28	1°55'21	max. Earth dist.	813 Oct 24 j 20:34	6° 0 20'34	31.30416 AU
min. Earth dist.	806 Apr 07 j 07:37	20° 2 00'06	29.31435 AU	retrograde	814 Feb 04 j 20:55	8° 0 49'10	
direct	806 Jun 26 j 17:43	18° 2 36'52		opposition	814 Apr 24 j 10:57	7° 0 27'05	1°55'19
				min. Earth dist.	814 Apr 25 j 03:49	7° 0 25'56	29.30430 AU
conjunction	806 Oct 10 j 17:50	21° 2 07'28	1°48'17	direct	814 Jul 14 j 17:36	6° 0 02'41	
minimum elong	806 Oct 10 j 17:50	21° 2 07'28	1°48'17				
max. Earth dist.	806 Oct 09 j 21:31	21° 2 05'33	31.31451 AU	conjunction	814 Oct 27 j 23:43	8° 0 32'37	1°47'37
retrograde	807 Jan 20 j 18:40	23° 2 34'06		minimum elong	814 Oct 27 j 23:43	8° 0 32'37	1°47'37
opposition	807 Apr 08 j 23:20	22° 2 12'17	1°55'55	max. Earth dist.	814 Oct 27 j 06:02	8° 0 30'57	31.30230 AU
min. Earth dist.	807 Apr 09 j 19:26	22° 2 10'55	29.31692 AU	retrograde	815 Feb 07 j 07:15	10° 0 59'38	
direct	807 Jun 29 j 06:13	20° 2 47'44		opposition	815 Apr 26 j 22:55	9° 0 37'31	1°54'34
max. Earth dist.	807 Oct 12 j 06:29	23° 2 16'17	31.31640 AU	min. Earth dist.	815 Apr 27 j 15:11	9° 0 36'25	29.30298 AU
				direct	815 Jul 17 j 04:00	8° 0 13'11	
conjunction	807 Oct 13 j 03:47	23° 2 18'16	1°48'44				
minimum elong	807 Oct 13 j 03:47	23° 2 18'16	1°48'44	conjunction	815 Oct 30 j 09:12	10° 0 43'03	1°46'50
retrograde	808 Jan 23 j 06:03	25° 2 44'58		minimum elong	815 Oct 30 j 09:12	10° 0 43'03	1°46'50
opposition	808 Apr 10 j 11:08	24° 2 23'09	1°56'20	max. Earth dist.	815 Oct 29 j 17:22	10° 0 41'34	31.30136 AU
min. Earth dist.	808 Apr 11 j 06:35	24° 2 21'50	29.31810 AU	retrograde	816 Feb 09 j 15:54	13° 0 10'08	
direct	808 Jun 30 j 16:28	22° 2 58'38		opposition	816 Apr 28 j 11:02	11° 0 48'02	1°53'39
				min. Earth dist.	816 Apr 29 j 02:42	11° 0 46'58	29.30220 AU
conjunction	808 Oct 14 j 13:53	25° 2 29'07	1°49'03	direct	816 Jul 18 j 17:08	10° 0 23'46	
minimum elong	808 Oct 14 j 13:53	25° 2 29'07	1°49'03				
max. Earth dist.	808 Oct 13 j 17:41	25° 2 27'13	31.31672 AU	conjunction	816 Oct 31 j 18:28	12° 0 53'34	1°45'54
retrograde	809 Jan 24 j 14:52	27° 2 55'51		minimum elong	816 Oct 31 j 18:28	12° 0 53'34	1°45'54
opposition	809 Apr 12 j 23:06	26° 2 34'01	1°56'34	max. Earth dist.	816 Oct 31 j 02:20	12° 0 52'03	31.30085 AU
min. Earth dist.	809 Apr 13 j 19:13	26° 2 32'39	29.31762 AU		817 Jan 06 j 22:35	15° 0	
direct	809 Jul 03 j 04:26	25° 2 09'33		retrograde	817 Feb 11 j 03:42	15° 0 20'46	
					817 Mar 19 j 09:30	15° 0 11'11	
conjunction	809 Oct 16 j 23:47	27° 2 39'56	1°49'11	opposition	817 Apr 30 j 23:09	13° 0 58'39	1°52'34
minimum elong	809 Oct 16 j 23:46	27° 2 39'56	1°49'11	min. Earth dist.	817 May 01 j 13:35	13° 0 57'40	29.30176 AU
max. Earth dist.	809 Oct 16 j 02:57	27° 2 37'58	31.31563 AU	direct	817 Jul 21 j 03:39	12° 0 34'27	
	810 Jan 07 j 06:59	0° 0			817 Nov 01 j 07:21	15° 0	
retrograde	810 Jan 27 j 02:23	0° 0 06'42					
	810 Feb 16 j 05:45	30° 0 11'11		conjunction	817 Nov 03 j 03:56	15° 0 04'12	1°44'49
opposition	810 Apr 15 j 11:00	28° 2 44'50	1°56'39	minimum elong	817 Nov 03 j 03:56	15° 0 04'12	1°44'49
min. Earth dist.	810 Apr 16 j 05:57	28° 2 43'33	29.31584 AU	max. Earth dist.	817 Nov 02 j 13:26	15° 0 02'50	31.30034 AU
direct	810 Jul 05 j 16:06	27° 2 20'22		retrograde	818 Feb 13 j 12:24	17° 0 31'30	
				opposition	818 May 03 j 11:33	16° 0 09'23	1°51'20
conjunction	810 Oct 19 j 09:34	29° 2 50'40	1°49'11	min. Earth dist.	818 May 04 j 02:10	16° 0 08'23	29.30104 AU
minimum elong	810 Oct 19 j 09:34	29° 2 50'40	1°49'11		818 Jun 22 j 16:28	15° 0 11'11	
max. Earth dist.	810 Oct 18 j 13:42	29° 2 48'48	31.31323 AU	direct	818 Jul 23 j 15:15	14° 0 45'16	
	810 Oct 23 j 12:57	0° 0			818 Aug 22 j 19:31	15° 0	
retrograde	811 Jan 29 j 12:27	2° 0 17'29					
opposition	811 Apr 17 j 23:03	0° 0 55'33	1°56'34	conjunction	818 Nov 05 j 13:12	17° 0 14'56	1°43'34
min. Earth dist.	811 Apr 18 j 18:42	0° 0 54'13	29.31301 AU	minimum elong	818 Nov 05 j 13:12	17° 0 14'56	1°43'34
	811 May 25 j 03:39	30° 0 11'11		max. Earth dist.	818 Nov 04 j 22:34	17° 0 13'33	31.29943 AU
direct	811 Jul 08 j 02:45	29° 2 31'06		retrograde	819 Feb 15 j 23:40	19° 0 42'21	

opposition	819 May 05 j 23:48	18° M 20'12	1°49'55	opposition	827 May 24 j 04:09	5° Δ 45'55	1°33'19
min. Earth dist.	819 May 06 j 12:59	18° M 19'19	29.29967 AU	min. Earth dist.	827 May 24 j 12:28	5° Δ 45'21	29.25562 AU
direct	819 Jul 26 j 01:54	16° M 56'08		direct	827 Aug 13 j 00:58	4° Δ 22'03	
conjunction	819 Nov 07 j 22:41	19° M 25'45	1°42'11	conjunction	827 Nov 25 j 00:37	6° Δ 50'56	1°26'05
minimum elong	819 Nov 07 j 22:41	19° M 25'45	1°42'10	minimum elong	827 Nov 25 j 00:37	6° Δ 50'56	1°26'05
max. Earth dist.	819 Nov 07 j 08:58	19° M 24'28	31.29747 AU	max. Earth dist.	827 Nov 24 j 16:42	6° Δ 50'11	31.25258 AU
retrograde	820 Feb 18 j 10:03	21° M 53'16		retrograde	828 Mar 07 j 00:41	9° Δ 19'12	
opposition	820 May 07 j 12:12	20° M 31'06	1°48'22	opposition	828 May 25 j 16:36	7° Δ 56'32	1°30'36
min. Earth dist.	820 May 08 j 02:01	20° M 30'10	29.29714 AU	min. Earth dist.	828 May 25 j 22:55	7° Δ 56'07	29.25112 AU
direct	820 Jul 27 j 11:40	19° M 07'05		direct	828 Aug 14 j 11:25	6° Δ 32'44	
conjunction	820 Nov 09 j 08:09	21° M 36'37	1°40'39	conjunction	828 Nov 26 j 09:48	9° Δ 01'35	1°23'29
minimum elong	820 Nov 09 j 08:09	21° M 36'37	1°40'39	minimum elong	828 Nov 26 j 09:48	9° Δ 01'35	1°23'29
max. Earth dist.	820 Nov 08 j 18:52	21° M 35'22	31.29439 AU	max. Earth dist.	828 Nov 26 j 03:14	9° Δ 00'58	31.24847 AU
retrograde	821 Feb 19 j 21:33	24° M 04'13		retrograde	829 Mar 09 j 11:35	11° Δ 30'01	
opposition	821 May 10 j 00:42	22° M 42'00	1°46'39	opposition	829 May 28 j 05:27	10° Δ 07'20	1°27'45
min. Earth dist.	821 May 10 j 13:01	22° M 41'11	29.29327 AU	min. Earth dist.	829 May 28 j 11:49	10° Δ 06'54	29.24730 AU
direct	821 Jul 30 j 00:38	21° M 18'01		direct	829 Aug 16 j 20:40	8° Δ 43'37	
conjunction	821 Nov 11 j 17:28	23° M 47'28	1°38'59	conjunction	829 Nov 28 j 18:51	11° Δ 12'25	1°20'45
minimum elong	821 Nov 11 j 17:28	23° M 47'28	1°38'58	minimum elong	829 Nov 28 j 18:51	11° Δ 12'25	1°20'45
max. Earth dist.	821 Nov 11 j 04:18	23° M 46'14	31.28983 AU	max. Earth dist.	829 Nov 28 j 13:25	11° Δ 11'54	31.24495 AU
retrograde	822 Feb 22 j 09:45	26° M 15'10		retrograde	830 Mar 11 j 23:32	13° Δ 41'01	
opposition	822 May 12 j 13:22	24° M 52'53	1°44'47	opposition	830 May 30 j 18:11	12° Δ 18'20	1°24'46
min. Earth dist.	822 May 13 j 01:56	24° M 52'02	29.28808 AU	min. Earth dist.	830 May 30 j 22:38	12° Δ 18'02	29.24369 AU
direct	822 Aug 01 j 11:58	23° M 28'55		direct	830 Aug 19 j 08:51	10° Δ 54'41	
conjunction	822 Nov 14 j 02:55	25° M 58'16	1°37'10	conjunction	830 Dec 01 j 04:04	13° Δ 23'28	1°17'54
minimum elong	822 Nov 14 j 02:55	25° M 58'16	1°37'10	minimum elong	830 Dec 01 j 04:04	13° Δ 23'28	1°17'55
max. Earth dist.	822 Nov 13 j 14:58	25° M 57'08	31.28408 AU	max. Earth dist.	830 Nov 30 j 22:56	13° Δ 22'59	31.24127 AU
retrograde	823 Feb 24 j 20:13	28° M 26'02		retrograde	831 Mar 14 j 12:45	15° Δ 52'14	
opposition	823 May 15 j 01:46	27° M 03'40	1°42'47	opposition	831 Jun 02 j 06:57	14° Δ 29'32	1°21'40
min. Earth dist.	823 May 15 j 13:18	27° M 02'53	29.28164 AU	min. Earth dist.	831 Jun 02 j 11:29	14° Δ 29'13	29.23986 AU
direct	823 Aug 04 j 01:17	25° M 39'42		direct	831 Aug 21 j 18:48	13° Δ 05'58	
conjunction	823 Nov 16 j 12:10	28° M 08'57	1°35'13	conjunction	831 Dec 03 j 13:27	15° Δ 34'43	1°14'57
minimum elong	823 Nov 16 j 12:10	28° M 08'57	1°35'13	minimum elong	831 Dec 03 j 13:27	15° Δ 34'43	1°14'56
max. Earth dist.	823 Nov 15 j 23:57	28° M 07'48	31.27730 AU	max. Earth dist.	831 Dec 03 j 09:47	15° Δ 34'22	31.23714 AU
	824 Jan 10 j 21:31	0° Δ		retrograde	832 Mar 16 j 00:11	18° Δ 03'39	
retrograde	824 Feb 27 j 07:28	0° Δ 36'47		opposition	832 Jun 03 j 19:50	16° Δ 40'56	1°18'26
	824 Apr 16 j 18:24	30° R M		min. Earth dist.	832 Jun 03 j 23:10	16° Δ 40'42	29.23516 AU
opposition	824 May 16 j 14:20	29° M 14'20	1°40'37	direct	832 Aug 23 j 07:04	15° Δ 17'26	
min. Earth dist.	824 May 17 j 01:22	29° M 13'36	29.27461 AU				
direct	824 Aug 05 j 12:24	27° M 50'23		conjunction	832 Dec 04 j 22:39	17° Δ 46'09	1°11'52
	824 Nov 09 j 06:06	0° Δ		minimum elong	832 Dec 04 j 22:39	17° Δ 46'09	1°11'52
				max. Earth dist.	832 Dec 04 j 18:43	17° Δ 45'47	31.23196 AU
conjunction	824 Nov 17 j 21:22	0° Δ 19'31	1°33'07	retrograde	833 Mar 18 j 12:54	20° Δ 15'15	
minimum elong	824 Nov 17 j 21:22	0° Δ 19'31	1°33'08	opposition	833 Jun 06 j 08:54	18° Δ 52'29	1°15'06
max. Earth dist.	824 Nov 17 j 11:08	0° Δ 18'33	31.27015 AU	min. Earth dist.	833 Jun 06 j 11:48	18° Δ 52'17	29.22942 AU
retrograde	825 Feb 28 j 16:39	2° Δ 47'26		direct	833 Aug 25 j 17:58	17° Δ 29'03	
opposition	825 May 19 j 02:58	1° Δ 24'54	1°38'20				
min. Earth dist.	825 May 19 j 13:13	1° Δ 24'12	29.26746 AU	conjunction	833 Dec 07 j 08:11	19° Δ 57'42	1°08'41
direct	825 Aug 08 j 02:11	0° Δ 00'57		minimum elong	833 Dec 07 j 08:11	19° Δ 57'42	1°08'42
				max. Earth dist.	833 Dec 07 j 05:54	19° Δ 57'29	31.22553 AU
conjunction	825 Nov 20 j 06:25	2° Δ 29'59	1°30'55	retrograde	834 Mar 20 j 23:56	22° Δ 26'56	
minimum elong	825 Nov 20 j 06:25	2° Δ 29'59	1°30'54	opposition	834 Jun 08 j 21:55	21° Δ 04'07	1°11'39
max. Earth dist.	825 Nov 19 j 20:10	2° Δ 29'01	31.26337 AU	min. Earth dist.	834 Jun 09 j 00:23	21° Δ 03'57	29.22220 AU
retrograde	826 Mar 03 j 04:39	4° Δ 58'00		direct	834 Aug 28 j 07:54	19° Δ 40'43	
opposition	826 May 21 j 15:30	3° Δ 35'24	1°35'53				
min. Earth dist.	826 May 22 j 00:06	3° Δ 34'49	29.26111 AU	conjunction	834 Dec 09 j 17:31	22° Δ 09'19	1°05'25
direct	826 Aug 10 j 13:13	2° Δ 11'28		minimum elong	834 Dec 09 j 17:31	22° Δ 09'19	1°05'25
				max. Earth dist.	834 Dec 09 j 14:47	22° Δ 09'03	31.21771 AU
conjunction	826 Nov 22 j 15:33	4° Δ 40'25	1°28'34	retrograde	835 Mar 23 j 12:59	24° Δ 38'40	
minimum elong	826 Nov 22 j 15:33	4° Δ 40'26	1°28'34	opposition	835 Jun 11 j 10:53	23° Δ 15'46	1°08'06
max. Earth dist.	826 Nov 22 j 07:13	4° Δ 39'38	31.25744 AU	min. Earth dist.	835 Jun 11 j 12:11	23° Δ 15'41	29.21365 AU
retrograde	827 Mar 05 j 13:26	7° Δ 08'34		direct	835 Aug 30 j 19:23	21° Δ 52'23	

conjunction	835 Dec 12 j 03:00	24° 2 20'53	1°02'03	conjunction	843 Dec 29 j 06:09	11° 3 52'41	0°32'16
minimum elong	835 Dec 12 j 03:00	24° 2 20'53	1°02'02	minimum elong	843 Dec 29 j 06:09	11° 3 52'41	0°32'15
max. Earth dist.	835 Dec 12 j 01:39	24° 2 20'46	31.20850 AU	max. Earth dist.	843 Dec 29 j 11:56	11° 3 53'13	31.14198 AU
retrograde	836 Mar 24 j 21:51	26° 2 50'22		retrograde	844 Apr 11 j 22:39	14° 3 23'20	
opposition	836 Jun 12 j 23:55	25° 2 27'22	1°04'27	opposition	844 Jul 01 j 08:10	12° 3 59'50	0°32'18
min. Earth dist.	836 Jun 13 j 01:20	25° 2 27'17	29.20389 AU	min. Earth dist.	844 Jul 01 j 01:00	13° 3 00'19	29.13848 AU
direct	836 Sep 01 j 07:55	24° 2 03'59		direct	844 Sep 19 j 01:18	11° 3 36'40	
conjunction	836 Dec 13 j 12:20	26° 2 32'23	0°58'35	conjunction	844 Dec 30 j 15:58	14° 3 04'43	0°28'15
minimum elong	836 Dec 13 j 12:20	26° 2 32'23	0°58'35	minimum elong	844 Dec 30 j 15:58	14° 3 04'43	0°28'15
max. Earth dist.	836 Dec 13 j 11:20	26° 2 32'18	31.19859 AU	max. Earth dist.	844 Dec 30 j 23:08	14° 3 05'24	31.13453 AU
retrograde	837 Mar 27 j 09:08	29° 2 01'58		retrograde	845 Apr 14 j 09:26	16° 3 35'34	
opposition	837 Jun 15 j 12:54	27° 2 38'52	1°00'42	opposition	845 Jul 03 j 21:29	15° 3 12'01	0°28'00
min. Earth dist.	837 Jun 15 j 12:27	27° 2 38'54	29.19377 AU	min. Earth dist.	845 Jul 03 j 14:27	15° 3 12'30	29.13060 AU
direct	837 Sep 03 j 19:40	26° 2 15'27		direct	845 Sep 21 j 13:33	13° 3 48'55	
conjunction	837 Dec 15 j 21:35	28° 2 43'46	0°55'03	conjunction	846 Jan 02 j 01:46	16° 3 16'57	0°24'12
minimum elong	837 Dec 15 j 21:35	28° 2 43'46	0°55'02	minimum elong	846 Jan 02 j 01:46	16° 3 16'57	0°24'12
max. Earth dist.	837 Dec 15 j 21:47	28° 2 43'48	31.18846 AU	max. Earth dist.	846 Jan 02 j 09:09	16° 3 17'38	31.12620 AU
	838 Jan 20 j 01:04	0° 3		retrograde	846 Apr 16 j 22:17	18° 3 47'58	
retrograde	838 Mar 29 j 19:52	1° 3 13'29		opposition	846 Jul 06 j 10:41	17° 3 24'22	0°23'38
	838 Jun 12 j 01:41	30° R 2		min. Earth dist.	846 Jul 06 j 02:09	17° 3 24'57	29.12158 AU
opposition	838 Jun 18 j 02:02	29° 2 50'16	0°56'53	direct	846 Sep 24 j 01:25	16° 3 01'18	
min. Earth dist.	838 Jun 18 j 01:38	29° 2 50'18	29.18388 AU				
direct	838 Sep 06 j 06:09	28° 2 26'51		conjunction	847 Jan 04 j 11:46	18° 3 29'19	0°20'07
	838 Nov 23 j 11:36	0° 3		minimum elong	847 Jan 04 j 11:47	18° 3 29'19	0°20'07
conjunction	838 Dec 18 j 06:59	0° 3 55'05	0°51'26	max. Earth dist.	847 Jan 04 j 19:39	18° 3 30'03	31.11641 AU
minimum elong	838 Dec 18 j 06:59	0° 3 55'05	0°51'26	retrograde	847 Apr 19 j 09:49	21° 3 00'30	
max. Earth dist.	838 Dec 18 j 08:29	0° 3 55'13	31.17896 AU	opposition	847 Jul 08 j 23:52	19° 3 36'50	0°19'15
retrograde	839 Apr 01 j 07:03	3° 3 24'54		min. Earth dist.	847 Jul 08 j 15:57	19° 3 37'22	29.11113 AU
opposition	839 Jun 20 j 14:47	2° 3 01'37	0°52'58	direct	847 Sep 26 j 12:06	18° 3 13'46	
min. Earth dist.	839 Jun 20 j 12:16	2° 3 01'47	29.17471 AU	conjunction	848 Jan 06 j 21:50	20° 3 41'45	0°16'00
direct	839 Sep 08 j 18:08	0° 3 38'12		minimum elong	848 Jan 06 j 21:50	20° 3 41'45	0°16'00
conjunction	839 Dec 20 j 16:19	3° 3 06'22	0°47'44	behind sun begin	848 Jan 06 j 20:42	20° 3 41'39	
minimum elong	839 Dec 20 j 16:19	3° 3 06'22	0°47'44	behind sun end	848 Jan 06 j 22:58	20° 3 41'51	
max. Earth dist.	839 Dec 20 j 18:14	3° 3 06'33	31.17024 AU	max. Earth dist.	848 Jan 07 j 06:35	20° 3 42'34	31.10539 AU
retrograde	840 Apr 02 j 19:38	5° 3 36'21		retrograde	848 Apr 20 j 21:21	23° 3 13'04	
opposition	840 Jun 22 j 03:53	4° 3 12'59	0°48'59	opposition	848 Jul 10 j 13:03	21° 3 49'20	0°14'50
min. Earth dist.	840 Jun 22 j 01:02	4° 3 13'11	29.16651 AU	min. Earth dist.	848 Jul 10 j 03:30	21° 3 49'59	29.09944 AU
direct	840 Sep 10 j 03:31	2° 3 49'37		direct	848 Sep 28 j 00:22	20° 3 26'15	
conjunction	840 Dec 22 j 01:40	5° 3 17'44	0°43'58	conjunction	849 Jan 08 j 07:38	22° 3 54'11	0°11'52
minimum elong	840 Dec 22 j 01:40	5° 3 17'44	0°43'58	minimum elong	849 Jan 08 j 07:38	22° 3 54'11	0°11'53
max. Earth dist.	840 Dec 22 j 05:35	5° 3 18'06	31.16253 AU	behind sun begin	849 Jan 08 j 03:07	22° 3 53'46	
retrograde	841 Apr 05 j 07:06	7° 3 47'51		behind sun end	849 Jan 08 j 12:09	22° 3 54'35	
opposition	841 Jun 24 j 16:56	6° 3 24'27	0°44'55	max. Earth dist.	849 Jan 08 j 16:22	22° 3 55'00	31.09326 AU
min. Earth dist.	841 Jun 24 j 12:24	6° 3 24'45	29.15907 AU	retrograde	849 Apr 23 j 09:48	25° 3 25'39	
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conjunction	841 Dec 24 j 11:03	7° 3 29'12	0°40'07	min. Earth dist.	849 Jul 12 j 16:54	24° 3 02'26	29.08710 AU
minimum elong	841 Dec 24 j 11:03	7° 3 29'12	0°40'08	direct	849 Sep 30 j 09:49	22° 3 38'42	
max. Earth dist.	841 Dec 24 j 15:01	7° 3 29'34	31.15549 AU	conjunction	850 Jan 10 j 17:41	25° 3 06'35	0°07'44
retrograde	842 Apr 07 j 20:46	9° 3 59'30		minimum elong	850 Jan 10 j 17:41	25° 3 06'35	0°07'44
opposition	842 Jun 27 j 05:57	8° 3 36'03	0°40'46	behind sun begin	850 Jan 10 j 11:53	25° 3 06'03	
min. Earth dist.	842 Jun 27 j 00:44	8° 3 36'24	29.15232 AU	behind sun end	850 Jan 10 j 23:29	25° 3 07'06	
direct	842 Sep 15 j 01:35	7° 3 12'46		max. Earth dist.	850 Jan 11 j 04:11	25° 3 07'34	31.08084 AU
conjunction	842 Dec 26 j 20:39	9° 3 40'51	0°36'13	retrograde	850 Apr 25 j 21:19	27° 3 38'11	
minimum elong	842 Dec 26 j 20:39	9° 3 40'51	0°36'13	opposition	850 Jul 15 j 15:17	26° 3 14'13	0°05'57
max. Earth dist.	842 Dec 27 j 02:35	9° 3 41'24	31.14881 AU	min. Earth dist.	850 Jul 15 j 04:27	26° 3 14'57	29.07472 AU
retrograde	843 Apr 10 j 08:51	12° 3 11'19		direct	850 Oct 02 j 21:26	24° 3 51'05	
opposition	843 Jun 29 j 19:03	10° 3 47'50	0°36'34	conjunction	851 Jan 13 j 03:37	27° 3 18'56	0°03'35
min. Earth dist.	843 Jun 29 j 13:10	10° 3 48'14	29.14553 AU	minimum elong	851 Jan 13 j 03:36	27° 3 18'56	0°03'35
direct	843 Sep 17 j 14:29	9° 3 24'37		behind sun begin	851 Jan 12 j 21:15	27° 3 18'21	
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				max. Earth dist.	851 Jan 13 j 13:59	27° 3 19'54	31.06871 AU

























































































































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opposition	851 Jul 18 j 04:21	28°  26'36	0°01'30		858 Apr 08 j 11:09	15° 	
min. Earth dist.	851 Jul 17 j 16:52	28°  27'23	29.06305 AU	retrograde	858 May 14 j 04:07	15°  20'36	
direct	851 Oct 05 j 07:57	27°  03'28			858 Jun 19 j 20:05	15°  R 	
desc. node	851 Nov 18 j 09:30	27°  35'44		opposition	858 Aug 02 j 23:35	13°  56'11	0°-29'-30
				min. Earth dist.	858 Aug 02 j 07:13	13°  57'18	29.00386 AU
conjunction	852 Jan 15 j 13:35	29°  31'17	0°00'-40	direct	858 Oct 20 j 15:40	12°  33'12	
minimum elong	852 Jan 15 j 13:35	29°  31'17	0°00'42				
behind sun begin	852 Jan 15 j 07:12	29°  30'42		conjunction	859 Jan 30 j 14:23	15°  01'03	0°-29'-36
behind sun end	852 Jan 15 j 19:59	29°  31'51		minimum elong	859 Jan 30 j 14:22	15°  01'03	0°29'37
max. Earth dist.	852 Jan 16 j 02:03	29°  32'27	31.05742 AU		859 Jan 30 j 03:16	15° 	
	852 Jan 28 j 05:41	0° 		max. Earth dist.	859 Jan 31 j 07:54	15°  02'42	30.99921 AU
retrograde	852 Apr 29 j 23:39	2°  03'09		retrograde	859 May 16 j 16:19	17°  34'02	
opposition	852 Jul 19 j 17:22	0°  39'01	0°-2'-57	opposition	859 Aug 05 j 12:38	16°  09'33	0°-33'-49
min. Earth dist.	852 Jul 19 j 04:58	0°  39'51	29.05229 AU	min. Earth dist.	859 Aug 04 j 19:18	16°  10'45	28.99474 AU
	852 Aug 13 j 12:33	30°  R 			859 Sep 24 j 12:18	15°  R 	
direct	852 Oct 06 j 20:29	29°  31'52		direct	859 Oct 23 j 03:36	14°  46'35	
	852 Nov 27 j 14:32	0° 			859 Nov 20 j 02:58	15° 	
conjunction	853 Jan 16 j 23:36	1°  43'40	0°-4'-53	conjunction	860 Feb 02 j 01:06	17°  14'25	0°-33'-37
minimum elong	853 Jan 16 j 23:37	1°  43'40	0°04'54	minimum elong	860 Feb 02 j 01:06	17°  14'25	0°33'38
behind sun begin	853 Jan 16 j 17:22	1°  43'07		max. Earth dist.	860 Feb 02 j 17:57	17°  16'00	30.98954 AU
behind sun end	853 Jan 17 j 05:51	1°  44'14		retrograde	860 May 18 j 06:01	19°  47'32	
max. Earth dist.	853 Jan 17 j 12:09	1°  44'51	31.04735 AU	min. Earth dist.	860 Aug 06 j 08:28	18°  24'10	28.98462 AU
retrograde	853 May 02 j 13:31	4°  15'42		opposition	860 Aug 07 j 01:49	18°  22'58	0°-38'-5
opposition	853 Jul 22 j 06:23	2°  51'30	0°-7'-25	direct	860 Oct 24 j 13:55	16°  59'58	
min. Earth dist.	853 Jul 21 j 16:30	2°  52'26	29.04286 AU				
direct	853 Oct 09 j 06:41	1°  28'22		conjunction	861 Feb 03 j 12:08	19°  27'48	0°-37'-35
				minimum elong	861 Feb 03 j 12:08	19°  27'48	0°37'36
conjunction	854 Jan 19 j 09:46	3°  56'10	0°-9'-2	max. Earth dist.	861 Feb 04 j 06:25	19°  29'32	30.97892 AU
minimum elong	854 Jan 19 j 09:45	3°  56'10	0°09'04	retrograde	861 May 20 j 18:20	22°  01'01	
behind sun begin	854 Jan 19 j 04:16	3°  55'40		opposition	861 Aug 09 j 14:50	20°  36'22	0°-42'-18
behind sun end	854 Jan 19 j 15:15	3°  56'40		min. Earth dist.	861 Aug 08 j 21:11	20°  37'34	28.97366 AU
max. Earth dist.	854 Jan 19 j 23:53	3°  57'30	31.03835 AU	direct	861 Oct 27 j 01:58	19°  13'19	
retrograde	854 May 05 j 01:21	6°  28'21					
opposition	854 Jul 24 j 19:28	5°  04'06	0°-11'-52	conjunction	862 Feb 05 j 23:02	21°  41'08	0°-41'-30
min. Earth dist.	854 Jul 24 j 05:25	5°  05'03	29.03435 AU	minimum elong	862 Feb 05 j 23:02	21°  41'08	0°41'31
direct	854 Oct 11 j 19:11	3°  41'00		max. Earth dist.	862 Feb 06 j 16:55	21°  42'50	30.96786 AU
				retrograde	862 May 23 j 08:31	24°  14'27	
conjunction	855 Jan 21 j 20:01	6°  08'48	0°-13'-11	min. Earth dist.	862 Aug 11 j 09:13	22°  50'58	28.96264 AU
minimum elong	855 Jan 21 j 20:01	6°  08'48	0°13'12	opposition	862 Aug 12 j 03:45	22°  49'42	0°-46'-27
behind sun begin	855 Jan 21 j 16:10	6°  08'27		direct	862 Oct 29 j 12:28	21°  26'37	
behind sun end	855 Jan 21 j 23:52	6°  09'09					
max. Earth dist.	855 Jan 22 j 10:42	6°  10'11	31.03035 AU	conjunction	863 Feb 08 j 10:04	23°  54'25	0°-45'-21
retrograde	855 May 07 j 15:31	8°  41'09		minimum elong	863 Feb 08 j 10:04	23°  54'25	0°45'22
opposition	855 Jul 27 j 08:18	7°  16'51	0°-16'-19	max. Earth dist.	863 Feb 09 j 05:08	23°  56'14	30.95681 AU
min. Earth dist.	855 Jul 26 j 16:34	7°  17'55	29.02665 AU	retrograde	863 May 25 j 20:56	26°  27'50	
direct	855 Oct 14 j 07:22	5°  53'47		opposition	863 Aug 14 j 16:33	25°  03'00	0°-50'-33
				min. Earth dist.	863 Aug 13 j 22:07	25°  04'16	28.95196 AU
conjunction	856 Jan 24 j 06:22	8°  21'37	0°-17'-20	direct	863 Nov 01 j 01:03	23°  39'53	
minimum elong	856 Jan 24 j 06:22	8°  21'37	0°17'21				
max. Earth dist.	856 Jan 24 j 21:48	8°  23'04	31.02280 AU	conjunction	864 Feb 10 j 21:06	26°  07'42	0°-49'-8
retrograde	856 May 09 j 03:33	10°  54'08		minimum elong	864 Feb 10 j 21:06	26°  07'42	0°49'09
opposition	856 Jul 28 j 21:29	9°  29'47	0°-20'-44	max. Earth dist.	864 Feb 11 j 16:38	26°  09'33	30.94665 AU
min. Earth dist.	856 Jul 28 j 06:09	9°  30'50	29.01931 AU	retrograde	864 May 27 j 11:46	28°  41'13	
direct	856 Oct 15 j 18:12	8°  06'46		min. Earth dist.	864 Aug 15 j 09:17	27°  17'41	28.94239 AU
				opposition	864 Aug 16 j 05:20	27°  16'19	0°-54'-33
conjunction	857 Jan 25 j 16:48	10°  34'35	0°-21'-27	direct	864 Nov 02 j 13:23	25°  53'11	
minimum elong	857 Jan 25 j 16:48	10°  34'35	0°21'28				
max. Earth dist.	857 Jan 26 j 09:23	10°  36'10	31.01551 AU	conjunction	865 Feb 12 j 08:06	28°  21'01	0°-52'-51
retrograde	857 May 11 j 15:24	13°  07'16		minimum elong	865 Feb 12 j 08:06	28°  21'01	0°52'52
opposition	857 Jul 31 j 10:32	11°  42'54	0°-25'-8	max. Earth dist.	865 Feb 13 j 04:19	28°  22'56	30.93756 AU
min. Earth dist.	857 Jul 30 j 17:40	11°  44'03	29.01187 AU		865 Mar 31 j 15:26	0°  K 	
direct	857 Oct 18 j 06:10	10°  19'55		retrograde	865 May 29 j 23:57	0°  K 	54'40
					865 Jul 31 j 00:30	30°  R 	
conjunction	858 Jan 28 j 03:27	12°  47'45	0°-25'-33	opposition	865 Aug 18 j 18:13	29°  29'42	0°-58'-29
minimum elong	858 Jan 28 j 03:27	12°  47'45	0°25'33	min. Earth dist.	865 Aug 17 j 22:34	29°  31'03	28.93405 AU

direct	865 Nov 05 j 00:24	28° 30 06'35		conjunction	874 Mar 04 j 17:56	18° 30 28'34	-1°-22'-11
	866 Jan 30 j 13:04	0° 30		minimum elong	874 Mar 04 j 17:56	18° 30 28'34	1°22'11
				max. Earth dist.	874 Mar 05 j 16:33	18° 30 30'43	30.88093 AU
conjunction	866 Feb 14 j 19:25	0° 30 34'26	0°-56'-29	retrograde	874 Jun 19 j 23:44	21° 30 03'12	
minimum elong	866 Feb 14 j 19:25	0° 30 34'26	0°56'29	opposition	874 Sep 08 j 12:20	19° 30 38'00	-1°-29'-21
max. Earth dist.	866 Feb 15 j 16:47	0° 30 36'27	30.92987 AU	min. Earth dist.	874 Sep 07 j 15:10	19° 30 39'28	28.87761 AU
retrograde	866 Jun 01 j 12:31	3° 30 08'12		direct	874 Nov 25 j 05:02	18° 30 14'52	
min. Earth dist.	866 Aug 20 j 09:29	1° 30 44'41	28.92698 AU				
opposition	866 Aug 21 j 06:43	1° 30 43'13	-1°-2'-20	conjunction	875 Mar 07 j 06:16	20° 30 43'08	-1°-24'-53
direct	866 Nov 07 j 12:25	0° 30 20'07		minimum elong	875 Mar 07 j 06:15	20° 30 43'08	1°24'54
				max. Earth dist.	875 Mar 08 j 05:28	20° 30 45'20	30.87258 AU
conjunction	867 Feb 17 j 06:40	2° 30 48'01	-1°00'-2	retrograde	875 Jun 22 j 13:41	23° 30 17'47	
minimum elong	867 Feb 17 j 06:40	2° 30 48'01	1°00'03	min. Earth dist.	875 Sep 10 j 02:29	21° 30 54'03	28.86935 AU
max. Earth dist.	867 Feb 18 j 03:48	2° 30 50'01	30.92332 AU	opposition	875 Sep 11 j 00:44	21° 30 52'30	-1°-32'-11
retrograde	867 Jun 04 j 01:44	5° 30 21'56		direct	875 Nov 27 j 18:21	20° 30 29'19	
opposition	867 Aug 23 j 19:31	3° 30 56'56	-1°-6'-5				
min. Earth dist.	867 Aug 22 j 22:37	3° 30 58'22	28.92107 AU	conjunction	876 Mar 08 j 18:20	22° 30 57'36	-1°-27'-28
direct	867 Nov 09 j 21:58	2° 30 33'51		minimum elong	876 Mar 08 j 18:20	22° 30 57'36	1°27'28
				max. Earth dist.	876 Mar 09 j 17:01	22° 30 59'45	30.86449 AU
conjunction	868 Feb 19 j 18:04	5° 30 01'49	-1°-3'-30	retrograde	876 Jun 24 j 03:28	25° 30 32'17	
minimum elong	868 Feb 19 j 18:04	5° 30 01'49	1°03'31	opposition	876 Sep 12 j 13:16	24° 30 06'56	-1°-34'-52
max. Earth dist.	868 Feb 20 j 16:47	5° 30 03'58	30.91782 AU	min. Earth dist.	876 Sep 11 j 15:41	24° 30 08'26	28.86179 AU
retrograde	868 Jun 05 j 14:04	7° 30 35'52		direct	876 Nov 29 j 05:30	22° 30 43'41	
min. Earth dist.	868 Aug 24 j 10:13	6° 30 12'23	28.91590 AU				
opposition	868 Aug 25 j 08:14	6° 30 10'52	-1°-9'-45	conjunction	877 Mar 11 j 06:49	25° 30 12'00	-1°-29'-54
direct	868 Nov 11 j 09:43	4° 30 47'50		minimum elong	877 Mar 11 j 06:49	25° 30 12'00	1°29'55
				max. Earth dist.	877 Mar 12 j 06:44	25° 30 14'15	30.85736 AU
conjunction	869 Feb 21 j 05:36	7° 30 15'51	-1°-6'-53	retrograde	877 Jun 26 j 15:12	27° 30 46'42	
minimum elong	869 Feb 21 j 05:36	7° 30 15'51	1°06'54	min. Earth dist.	877 Sep 14 j 02:57	26° 30 22'52	28.85521 AU
max. Earth dist.	869 Feb 22 j 03:42	7° 30 17'56	30.91291 AU	opposition	877 Sep 15 j 01:27	26° 30 21'18	-1°-37'-25
retrograde	869 Jun 08 j 03:35	9° 30 50'03		direct	877 Dec 01 j 18:02	24° 30 58'01	
opposition	869 Aug 27 j 20:57	8° 30 25'02	-1°-13'-18				
min. Earth dist.	869 Aug 26 j 23:06	8° 30 26'33	28.91123 AU	conjunction	878 Mar 13 j 19:13	27° 30 26'21	-1°-32'-13
direct	869 Nov 13 j 19:16	7° 30 02'02		minimum elong	878 Mar 13 j 19:13	27° 30 26'21	1°32'14
				max. Earth dist.	878 Mar 14 j 18:18	27° 30 28'32	30.85138 AU
conjunction	870 Feb 23 j 17:29	9° 30 30'07	-1°-10'-10		878 Jun 20 j 21:59	0° 30	
minimum elong	870 Feb 23 j 17:29	9° 30 30'07	1°10'11	retrograde	878 Jun 29 j 04:11	0° 30 01'07	
max. Earth dist.	870 Feb 24 j 16:53	9° 30 32'20	30.90808 AU		878 Jul 07 j 10:48	30° 30	
retrograde	870 Jun 10 j 16:01	12° 30 04'27		opposition	878 Sep 17 j 13:47	28° 30 35'40	-1°-39'-48
min. Earth dist.	870 Aug 29 j 11:50	10° 30 40'57	28.90620 AU	min. Earth dist.	878 Sep 16 j 15:30	28° 30 37'14	28.84996 AU
opposition	870 Aug 30 j 09:41	10° 30 39'27	-1°-16'-45	direct	878 Dec 04 j 04:00	27° 30 12'22	
direct	870 Nov 16 j 06:19	9° 30 16'27					
				conjunction	879 Mar 16 j 07:44	29° 30 40'45	-1°-34'-23
conjunction	871 Feb 26 j 05:23	11° 30 44'36	-1°-13'-20	minimum elong	879 Mar 16 j 07:44	29° 30 40'45	1°34'24
minimum elong	871 Feb 26 j 05:23	11° 30 44'36	1°13'21	max. Earth dist.	879 Mar 17 j 08:11	29° 30 43'04	30.84663 AU
max. Earth dist.	871 Feb 27 j 03:54	11° 30 46'44	30.90273 AU		879 Mar 24 j 19:54	0° 30	
retrograde	871 Jun 13 j 06:49	14° 30 19'03		retrograde	879 Jul 01 j 15:57	2° 30 15'33	
opposition	871 Sep 01 j 22:22	12° 30 54'01	-1°-20'-5	min. Earth dist.	879 Sep 19 j 03:29	0° 30 51'41	28.84583 AU
min. Earth dist.	871 Sep 01 j 00:12	12° 30 55'34	28.90051 AU	opposition	879 Sep 20 j 01:58	0° 30 50'06	-1°-42'-3
direct	871 Nov 18 j 16:16	11° 30 31'02			879 Oct 22 j 01:37	30° 30	
				direct	879 Dec 06 j 15:09	29° 30 26'47	
conjunction	872 Feb 28 j 17:32	13° 30 59'14	-1°-16'-24		880 Jan 19 j 20:57	0° 30	
minimum elong	872 Feb 28 j 17:32	13° 30 59'14	1°16'25				
max. Earth dist.	872 Feb 29 j 16:34	14° 30 01'25	30.89640 AU	conjunction	880 Mar 17 j 20:18	1° 30 55'14	-1°-36'-25
retrograde	872 Jun 14 j 20:04	16° 30 33'46		minimum elong	880 Mar 17 j 20:18	1° 30 55'14	1°36'25
opposition	872 Sep 03 j 11:11	15° 30 08'42	-1°-23'-18	max. Earth dist.	880 Mar 18 j 20:00	1° 30 57'28	30.84319 AU
min. Earth dist.	872 Sep 02 j 13:41	15° 30 10'12	28.89369 AU	retrograde	880 Jul 03 j 06:18	4° 30 30'06	
direct	872 Nov 20 j 04:59	13° 30 45'41		opposition	880 Sep 21 j 14:12	3° 30 04'39	-1°-44'-8
				min. Earth dist.	880 Sep 20 j 15:19	3° 30 06'15	28.84300 AU
conjunction	873 Mar 02 j 05:41	16° 30 13'55	-1°-19'-21	direct	880 Dec 08 j 01:08	1° 30 41'20	
minimum elong	873 Mar 02 j 05:40	16° 30 13'55	1°19'22				
max. Earth dist.	873 Mar 03 j 04:22	16° 30 16'04	30.88914 AU	conjunction	881 Mar 20 j 09:03	4° 30 09'52	-1°-38'-17
retrograde	873 Jun 17 j 11:16	18° 30 48'31		minimum elong	881 Mar 20 j 09:02	4° 30 09'52	1°38'19
opposition	873 Sep 05 j 23:49	17° 30 23'23	-1°-26'-24	max. Earth dist.	881 Mar 21 j 09:29	4° 30 12'10	30.84067 AU
min. Earth dist.	873 Sep 05 j 01:33	17° 30 24'55	28.88595 AU	retrograde	881 Jul 05 j 18:43	6° 30 44'48	
direct	873 Nov 22 j 17:39	16° 30 00'19		min. Earth dist.	881 Sep 23 j 04:13	5° 30 20'55	28.84080 AU
				opposition	881 Sep 24 j 02:25	5° 30 19'22	-1°-46'-4

direct	881 Dec 10 j 12:51	3°♈56'04		minimum elong	890 Apr 10 j 08:41	24°♈25'51	1°48'13
				max. Earth dist.	890 Apr 11 j 06:14	24°♈27'52	30.80887 AU
conjunction	882 Mar 22 j 22:00	6°♈24'42	-1°-40'-1	retrograde	890 Jul 26 j 17:37	27°♈00'43	
minimum elong	882 Mar 22 j 22:00	6°♈24'42	1°40'02	opposition	890 Oct 14 j 13:34	25°♈35'14	-1°-55'-54
max. Earth dist.	882 Mar 23 j 21:57	6°♈26'57	30.83873 AU	min. Earth dist.	890 Oct 13 j 18:35	25°♈36'34	28.80917 AU
retrograde	882 Jul 08 j 09:39	8°♈59'40		direct	890 Dec 30 j 22:15	24°♈11'33	
opposition	882 Sep 26 j 14:22	7°♈34'17	-1°-47'-50				
min. Earth dist.	882 Sep 25 j 15:37	7°♈35'52	28.83890 AU	conjunction	891 Apr 12 j 22:09	26°♈40'46	-1°-48'-30
direct	882 Dec 13 j 00:32	6°♈10'58		minimum elong	891 Apr 12 j 22:09	26°♈40'46	1°48'31
				max. Earth dist.	891 Apr 13 j 19:05	26°♈42'44	30.80732 AU
conjunction	883 Mar 25 j 11:05	8°♈39'43	-1°-41'-36	retrograde	891 Jul 29 j 07:40	29°♈15'36	
minimum elong	883 Mar 25 j 11:05	8°♈39'43	1°41'37	min. Earth dist.	891 Oct 16 j 05:21	27°♈51'30	28.80838 AU
max. Earth dist.	883 Mar 26 j 10:45	8°♈41'57	30.83660 AU	opposition	891 Oct 17 j 01:05	27°♈50'07	-1°-56'-7
retrograde	883 Jul 10 j 22:51	11°♈14'45		direct	892 Jan 02 j 09:13	26°♈26'22	
min. Earth dist.	883 Sep 28 j 05:15	9°♈50'52	28.83661 AU				
opposition	883 Sep 29 j 02:37	9°♈49'23	-1°-49'-26	conjunction	892 Apr 14 j 11:34	28°♈55'40	-1°-48'-38
direct	883 Dec 15 j 11:28	8°♈26'04		minimum elong	892 Apr 14 j 11:34	28°♈55'41	1°48'38
				max. Earth dist.	892 Apr 15 j 08:30	28°♈57'38	30.80722 AU
conjunction	884 Mar 27 j 00:14	10°♈54'54	-1°-43'-1		892 May 13 j 20:49	0°♈	
minimum elong	884 Mar 27 j 00:14	10°♈54'54	1°43'01	retrograde	892 Jul 30 j 19:47	1°♈30'28	
max. Earth dist.	884 Mar 27 j 23:55	10°♈57'08	30.83399 AU	opposition	892 Oct 18 j 12:42	0°♈05'01	-1°-56'-10
retrograde	884 Jul 12 j 13:59	13°♈29'58		min. Earth dist.	892 Oct 17 j 18:10	0°♈06'19	28.80905 AU
opposition	884 Sep 30 j 14:42	12°♈04'36	-1°-50'-52		892 Oct 21 j 11:34	30°♈	
min. Earth dist.	884 Sep 29 j 16:51	12°♈06'08	28.83351 AU	direct	893 Jan 03 j 19:55	28°♈41'15	
direct	884 Dec 17 j 00:58	10°♈41'16			893 Mar 15 j 11:36	0°♈	
conjunction	885 Mar 29 j 13:35	13°♈10'11	-1°-44'-17	conjunction	893 Apr 17 j 01:19	1°♈10'38	-1°-48'-36
minimum elong	885 Mar 29 j 13:35	13°♈10'11	1°44'18	minimum elong	893 Apr 17 j 01:19	1°♈10'38	1°48'37
max. Earth dist.	885 Mar 30 j 11:57	13°♈12'17	30.83034 AU	max. Earth dist.	893 Apr 17 j 22:18	1°♈12'36	30.80867 AU
retrograde	885 Jul 15 j 04:17	15°♈45'15		retrograde	893 Aug 02 j 10:14	3°♈45'23	
min. Earth dist.	885 Oct 02 j 06:23	14°♈21'18	28.82946 AU	opposition	893 Oct 21 j 00:00	2°♈19'58	-1°-56'-2
opposition	885 Oct 03 j 02:48	14°♈19'52	-1°-52'-8	min. Earth dist.	893 Oct 20 j 04:52	2°♈21'19	28.81101 AU
direct	885 Dec 19 j 12:31	12°♈56'30		direct	894 Jan 06 j 09:23	0°♈56'12	
conjunction	886 Apr 01 j 03:06	15°♈25'28	-1°-45'-23	conjunction	894 Apr 19 j 15:04	3°♈25'41	-1°-48'-23
minimum elong	886 Apr 01 j 03:06	15°♈25'28	1°45'24	minimum elong	894 Apr 19 j 15:04	3°♈25'41	1°48'24
max. Earth dist.	886 Apr 02 j 01:51	15°♈27'37	30.82588 AU	max. Earth dist.	894 Apr 20 j 11:00	3°♈27'33	30.81110 AU
retrograde	886 Jul 17 j 16:38	18°♈00'31		retrograde	894 Aug 04 j 23:48	6°♈00'24	
opposition	886 Oct 05 j 14:43	16°♈35'07	-1°-53'-14	opposition	894 Oct 23 j 11:32	4°♈35'02	-1°-55'-43
min. Earth dist.	886 Oct 04 j 18:01	16°♈36'34	28.82461 AU	min. Earth dist.	894 Oct 22 j 17:47	4°♈36'17	28.81384 AU
direct	886 Dec 22 j 01:39	15°♈11'42		direct	895 Jan 08 j 20:45	3°♈11'16	
conjunction	887 Apr 03 j 16:18	17°♈40'42	-1°-46'-20	conjunction	895 Apr 22 j 04:54	5°♈40'51	-1°-48'-1
minimum elong	887 Apr 03 j 16:18	17°♈40'42	1°46'22	minimum elong	895 Apr 22 j 04:54	5°♈40'51	1°48'02
max. Earth dist.	887 Apr 04 j 13:37	17°♈42'43	30.82089 AU	max. Earth dist.	895 Apr 23 j 01:12	5°♈42'45	30.81413 AU
retrograde	887 Jul 20 j 05:59	20°♈15'43		retrograde	895 Aug 07 j 13:13	8°♈15'31	
min. Earth dist.	887 Oct 07 j 06:44	18°♈51'41	28.81968 AU	opposition	895 Oct 25 j 22:56	6°♈50'13	-1°-55'-14
opposition	887 Oct 08 j 02:39	18°♈50'17	-1°-54'-10	min. Earth dist.	895 Oct 25 j 05:03	6°♈51'28	28.81682 AU
direct	887 Dec 24 j 12:25	17°♈26'47		direct	896 Jan 11 j 09:38	5°♈26'26	
conjunction	888 Apr 05 j 05:47	19°♈55'51	-1°-47'-7	conjunction	896 Apr 23 j 18:51	7°♈56'06	-1°-47'-28
minimum elong	888 Apr 05 j 05:47	19°♈55'51	1°47'08	minimum elong	896 Apr 23 j 18:51	7°♈56'06	1°47'29
max. Earth dist.	888 Apr 06 j 04:00	19°♈57'56	30.81605 AU	max. Earth dist.	896 Apr 24 j 13:19	7°♈57'50	30.81703 AU
retrograde	888 Jul 21 j 17:55	22°♈30'49		retrograde	896 Aug 09 j 03:51	10°♈30'43	
opposition	888 Oct 09 j 14:22	21°♈05'21	-1°-54'-55	opposition	896 Oct 27 j 10:22	9°♈05'28	-1°-54'-34
min. Earth dist.	888 Oct 08 j 18:40	21°♈06'44	28.81511 AU	min. Earth dist.	896 Oct 26 j 17:42	9°♈06'38	28.81952 AU
direct	888 Dec 26 j 00:05	19°♈41'47		direct	897 Jan 12 j 20:56	7°♈41'39	
conjunction	889 Apr 07 j 19:09	22°♈10'53	-1°-47'-45	conjunction	897 Apr 26 j 09:07	10°♈11'25	-1°-46'-46
minimum elong	889 Apr 07 j 19:09	22°♈10'53	1°47'46	minimum elong	897 Apr 26 j 09:07	10°♈11'25	1°46'48
max. Earth dist.	889 Apr 08 j 16:10	22°♈12'52	30.81196 AU	max. Earth dist.	897 Apr 27 j 03:48	10°♈13'10	30.81930 AU
retrograde	889 Jul 24 j 06:58	24°♈45'49		retrograde	897 Aug 11 j 16:14	12°♈45'57	
min. Earth dist.	889 Oct 11 j 06:19	23°♈21'43	28.81157 AU	opposition	897 Oct 29 j 21:48	11°♈20'44	-1°-53'-43
opposition	889 Oct 12 j 02:02	23°♈20'19	-1°-55'-30	min. Earth dist.	897 Oct 29 j 05:53	11°♈21'51	28.82126 AU
direct	889 Dec 28 j 10:47	21°♈56'41		direct	898 Jan 15 j 09:34	9°♈56'53	
conjunction	890 Apr 10 j 08:41	24°♈25'51	-1°-48'-12	conjunction	898 Apr 28 j 23:13	12°♈26'42	-1°-45'-54

minimum elong	898 Apr 28 j 23:13	12° 8 26'42	1°45'54	min. Earth dist.	905 Nov 16 j 02:57	29° 8 20'30	28.84126 AU
max. Earth dist.	898 Apr 29 j 15:54	12° 8 28'16	30.82070 AU	direct	906 Feb 02 j 07:55	27° 8 55'27	
	898 Aug 05 j 21:43	15° 8			906 May 06 j 02:12	0° II	
retrograde	898 Aug 14 j 05:15	15° 8 01'08					
	898 Aug 22 j 11:20	15° R 8		conjunction	906 May 17 j 16:20	0° II 25'52	-1°-33'-23
opposition	898 Nov 01 j 09:03	13° 8 35'56	-1°-52'-43	minimum elong	906 May 17 j 16:21	0° II 25'52	1°33'23
min. Earth dist.	898 Oct 31 j 17:43	13° 8 37'01	28.82229 AU	max. Earth dist.	906 May 18 j 05:01	0° II 27'03	30.84395 AU
direct	899 Jan 17 j 20:50	12° 8 12'02		retrograde	906 Sep 01 j 09:44	2° II 59'24	
				opposition	906 Nov 19 j 00:50	1° II 34'33	-1°-38'-40
conjunction	899 May 01 j 13:24	14° 8 41'54	-1°-44'-53	min. Earth dist.	906 Nov 18 j 14:18	1° II 35'18	28.84856 AU
minimum elong	899 May 01 j 13:24	14° 8 41'54	1°44'54	direct	907 Feb 04 j 20:40	0° II 10'18	
max. Earth dist.	899 May 02 j 06:05	14° 8 43'28	30.82142 AU				
	899 May 09 j 14:48	15° 8		conjunction	907 May 20 j 06:31	2° II 40'49	-1°-31'-8
retrograde	899 Aug 16 j 16:02	17° 8 16'14		minimum elong	907 May 20 j 06:31	2° II 40'49	1°31'10
opposition	899 Nov 03 j 20:19	15° 8 51'03	-1°-51'-32	max. Earth dist.	907 May 20 j 17:23	2° II 41'49	30.85176 AU
min. Earth dist.	899 Nov 03 j 06:15	15° 8 52'02	28.82279 AU	retrograde	907 Sep 03 j 23:13	5° II 14'15	
	899 Dec 06 j 02:08	15° R 8		opposition	907 Nov 21 j 11:38	3° II 49'30	-1°-36'-11
direct	900 Jan 20 j 08:25	14° 8 27'04		min. Earth dist.	907 Nov 21 j 01:39	3° II 50'13	28.85656 AU
	900 Mar 04 j 17:15	15° 8		direct	908 Feb 07 j 07:48	2° II 25'15	
conjunction	900 May 03 j 03:26	16° 8 56'59	-1°-43'-42	conjunction	908 May 21 j 20:55	4° II 55'53	-1°-28'-45
minimum elong	900 May 03 j 03:26	16° 8 56'59	1°43'42	minimum elong	908 May 21 j 20:55	4° II 55'53	1°28'46
max. Earth dist.	900 May 03 j 18:47	16° 8 58'26	30.82204 AU	max. Earth dist.	908 May 22 j 07:47	4° II 56'53	30.85970 AU
retrograde	900 Aug 18 j 05:41	19° 8 31'12		retrograde	908 Sep 05 j 10:49	7° II 29'12	
opposition	900 Nov 05 j 07:24	18° 8 06'01	-1°-50'-11	opposition	908 Nov 22 j 22:32	6° II 04'34	-1°-33'-34
min. Earth dist.	900 Nov 04 j 17:11	18° 8 07'01	28.82343 AU	min. Earth dist.	908 Nov 22 j 14:04	6° II 05'10	28.86424 AU
direct	901 Jan 21 j 19:43	16° 8 41'57		direct	909 Feb 08 j 19:15	4° II 40'19	
conjunction	901 May 05 j 17:38	19° 8 11'57	-1°-42'-21	conjunction	909 May 24 j 11:24	7° II 11'01	-1°-26'-14
minimum elong	901 May 05 j 17:38	19° 8 11'57	1°42'23	minimum elong	909 May 24 j 11:25	7° II 11'01	1°26'15
max. Earth dist.	901 May 06 j 08:32	19° 8 13'20	30.82281 AU	max. Earth dist.	909 May 24 j 20:18	7° II 11'51	30.86714 AU
retrograde	901 Aug 20 j 16:26	21° 8 46'01		retrograde	909 Sep 08 j 00:38	9° II 44'13	
opposition	901 Nov 07 j 18:25	20° 8 20'52	-1°-48'-40	opposition	909 Nov 25 j 09:14	8° II 19'40	-1°-30'-48
min. Earth dist.	901 Nov 07 j 05:48	20° 8 21'46	28.82453 AU	min. Earth dist.	909 Nov 25 j 01:00	8° II 20'15	28.87119 AU
direct	902 Jan 24 j 06:40	18° 8 56'44		direct	910 Feb 11 j 06:18	6° II 55'22	
conjunction	902 May 08 j 07:50	21° 8 26'47	-1°-40'-52	conjunction	910 May 27 j 01:57	9° II 26'10	-1°-23'-36
minimum elong	902 May 08 j 07:50	21° 8 26'47	1°40'52	minimum elong	910 May 27 j 01:57	9° II 26'10	1°23'36
max. Earth dist.	902 May 08 j 22:20	21° 8 28'09	30.82446 AU	max. Earth dist.	910 May 27 j 09:59	9° II 26'54	30.87355 AU
retrograde	902 Aug 23 j 05:40	24° 8 00'45		retrograde	910 Sep 10 j 10:29	11° II 59'13	
opposition	902 Nov 10 j 05:20	22° 8 35'37	-1°-46'-59	opposition	910 Nov 27 j 20:11	10° II 34'43	-1°-27'-54
min. Earth dist.	902 Nov 09 j 16:16	22° 8 36'32	28.82663 AU	min. Earth dist.	910 Nov 27 j 13:56	10° II 35'10	28.87708 AU
direct	903 Jan 26 j 20:06	21° 8 11'26		direct	911 Feb 13 j 17:29	9° II 10'23	
conjunction	903 May 10 j 21:44	23° 8 41'33	-1°-39'-13	conjunction	911 May 29 j 16:15	11° II 41'12	-1°-20'-49
minimum elong	903 May 10 j 21:44	23° 8 41'33	1°39'15	minimum elong	911 May 29 j 16:16	11° II 41'12	1°20'51
max. Earth dist.	903 May 11 j 11:15	23° 8 42'49	30.82715 AU	max. Earth dist.	911 May 29 j 23:11	11° II 41'51	30.87911 AU
retrograde	903 Aug 25 j 17:58	26° 8 15'24		retrograde	911 Sep 12 j 22:43	14° II 14'06	
opposition	903 Nov 12 j 16:23	24° 8 50'18	-1°-45'-9	opposition	911 Nov 30 j 06:54	12° II 49'39	-1°-24'-53
min. Earth dist.	903 Nov 12 j 04:37	24° 8 51'08	28.83007 AU	min. Earth dist.	911 Nov 30 j 00:41	12° II 50'05	28.88210 AU
direct	904 Jan 29 j 07:23	23° 8 26'04		direct	912 Feb 16 j 06:37	11° II 25'13	
conjunction	904 May 12 j 11:57	25° 8 56'17	-1°-37'-25	conjunction	912 May 31 j 06:40	13° II 56'06	-1°-17'-56
minimum elong	904 May 12 j 11:57	25° 8 56'17	1°37'26	minimum elong	912 May 31 j 06:40	13° II 56'06	1°17'57
max. Earth dist.	904 May 13 j 01:44	25° 8 57'34	30.83137 AU	max. Earth dist.	912 May 31 j 12:07	13° II 56'36	30.88382 AU
retrograde	904 Aug 27 j 07:07	28° 8 30'01		retrograde	912 Sep 14 j 10:03	16° II 28'49	
opposition	904 Nov 14 j 03:08	27° 8 04'59	-1°-43'-9	opposition	912 Dec 01 j 17:33	15° II 04'23	-1°-21'-44
min. Earth dist.	904 Nov 13 j 15:06	27° 8 05'51	28.83492 AU	min. Earth dist.	912 Dec 01 j 13:14	15° II 04'41	28.88663 AU
direct	905 Jan 30 j 20:12	25° 8 40'44		direct	913 Feb 17 j 17:25	13° II 39'52	
conjunction	905 May 15 j 02:05	28° 8 11'02	-1°-35'-28	conjunction	913 Jun 02 j 21:07	16° II 10'47	-1°-14'-56
minimum elong	905 May 15 j 02:05	28° 8 11'02	1°35'30	minimum elong	913 Jun 02 j 21:07	16° II 10'47	1°14'58
max. Earth dist.	905 May 15 j 14:13	28° 8 12'10	30.83702 AU	max. Earth dist.	913 Jun 03 j 02:12	16° II 11'15	30.88830 AU
	905 Jul 07 j 21:53	0° II		retrograde	913 Sep 16 j 22:03	18° II 43'18	
retrograde	905 Aug 29 j 21:39	0° II 44'40		opposition	913 Dec 04 j 04:05	17° II 18'54	-1°-18'-28
	905 Oct 22 j 22:16	30° R 8		min. Earth dist.	913 Dec 03 j 23:53	17° II 19'12	28.89098 AU
opposition	905 Nov 16 j 14:03	29° 8 19'43	-1°-40'-59	direct	914 Feb 20 j 07:04	15° II 54'19	

conjunction	914 Jun 05 j 11:12	18°II25'15	-1°-11'-49	conjunction	922 Jun 24 j 04:07	6°☾17'37	0°-43'-30
minimum elong	914 Jun 05 j 11:12	18°II25'15	1°11'50	minimum elong	922 Jun 24 j 04:07	6°☾17'37	0°43'31
max. Earth dist.	914 Jun 05 j 14:26	18°II25'33	30.89281 AU	max. Earth dist.	922 Jun 24 j 01:22	6°☾17'22	30.95995 AU
retrograde	914 Sep 19 j 10:53	20°II57'34		retrograde	922 Oct 07 j 08:03	8°☾48'43	
opposition	914 Dec 06 j 14:38	19°II33'11	-1°-15'-5	opposition	922 Dec 24 j 01:51	7°☾25'02	0°-44'-26
min. Earth dist.	914 Dec 06 j 11:32	19°II33'24	28.89578 AU	min. Earth dist.	922 Dec 24 j 04:37	7°☾24'50	28.96436 AU
direct	915 Feb 22 j 19:24	18°II08'31		direct	923 Mar 12 j 18:09	6°☾00'11	
conjunction	915 Jun 08 j 01:27	20°II39'30	-1°-8'-36	conjunction	923 Jun 26 j 18:08	8°☾31'43	0°-39'-37
minimum elong	915 Jun 08 j 01:27	20°II39'30	1°08'38	minimum elong	923 Jun 26 j 18:08	8°☾31'43	0°39'38
max. Earth dist.	915 Jun 08 j 05:02	20°II39'50	30.89800 AU	max. Earth dist.	923 Jun 26 j 13:13	8°☾31'16	30.96821 AU
retrograde	915 Sep 21 j 22:02	23°II11'38		retrograde	923 Oct 09 j 20:25	11°☾02'40	
opposition	915 Dec 09 j 01:02	21°II47'17	-1°-11'-35	opposition	923 Dec 26 j 12:13	9°☾39'02	0°-40'-15
min. Earth dist.	915 Dec 08 j 22:33	21°II47'28	28.90135 AU	min. Earth dist.	923 Dec 26 j 16:23	9°☾38'45	28.97222 AU
direct	916 Feb 25 j 08:46	20°II22'33		direct	924 Mar 14 j 06:10	8°☾14'09	
conjunction	916 Jun 09 j 15:27	22°II53'34	-1°-5'-17	conjunction	924 Jun 28 j 08:15	10°☾45'44	0°-35'-40
minimum elong	916 Jun 09 j 15:28	22°II53'34	1°05'18	minimum elong	924 Jun 28 j 08:15	10°☾45'44	0°35'41
max. Earth dist.	916 Jun 09 j 17:14	22°II53'44	30.90422 AU	max. Earth dist.	924 Jun 28 j 03:12	10°☾45'16	30.97564 AU
retrograde	916 Sep 23 j 11:11	25°II25'32		retrograde	924 Oct 11 j 07:12	13°☾16'30	
opposition	916 Dec 10 j 11:27	24°II01'14	-1°-7'-59	opposition	924 Dec 27 j 22:36	11°☾52'55	0°-36'-1
min. Earth dist.	916 Dec 10 j 09:18	24°II01'23	28.90818 AU	min. Earth dist.	924 Dec 28 j 03:45	11°☾52'33	28.97913 AU
direct	917 Feb 26 j 20:30	22°II36'27		direct	925 Mar 16 j 19:36	10°☾27'59	
conjunction	917 Jun 12 j 05:41	25°II07'31	-1°-1'-52	conjunction	925 Jun 30 j 22:05	12°☾59'35	0°-31'-41
minimum elong	917 Jun 12 j 05:41	25°II07'31	1°01'54	minimum elong	925 Jun 30 j 22:05	12°☾59'35	0°31'42
max. Earth dist.	917 Jun 12 j 07:46	25°II07'43	30.91163 AU	max. Earth dist.	925 Jun 30 j 14:53	12°☾58'55	30.98234 AU
retrograde	917 Sep 25 j 22:24	27°II39'18		retrograde	925 Oct 13 j 20:07	15°☾30'09	
opposition	917 Dec 12 j 21:52	26°II15'05	-1°-4'-17	opposition	925 Dec 30 j 08:49	14°☾06'37	0°-31'-44
min. Earth dist.	917 Dec 12 j 20:52	26°II15'10	28.91619 AU	min. Earth dist.	925 Dec 30 j 14:34	14°☾06'13	28.98568 AU
direct	918 Mar 01 j 08:39	24°II50'17		direct	926 Mar 19 j 07:45	12°☾41'37	
conjunction	918 Jun 14 j 19:42	27°II21'26	0°-58'-22	conjunction	926 Jul 03 j 11:57	15°☾13'15	0°-27'-40
minimum elong	918 Jun 14 j 19:43	27°II21'26	0°58'23	minimum elong	926 Jul 03 j 11:57	15°☾13'15	0°27'40
max. Earth dist.	918 Jun 14 j 20:15	27°II21'29	30.92045 AU	max. Earth dist.	926 Jul 03 j 04:56	15°☾12'36	30.98879 AU
retrograde	918 Sep 28 j 11:27	29°II53'04		retrograde	926 Oct 16 j 07:15	17°☾43'37	
opposition	918 Dec 15 j 08:13	28°II28'57	-1°00'-29	opposition	927 Jan 01 j 19:08	16°☾20'07	0°-27'-24
min. Earth dist.	918 Dec 15 j 06:56	28°II29'02	28.92554 AU	min. Earth dist.	927 Jan 02 j 02:15	16°☾19'37	28.99218 AU
direct	919 Mar 03 j 20:03	27°II04'08		direct	927 Mar 21 j 21:05	14°☾55'03	
conjunction	919 Jun 17 j 09:41	29°II35'22	0°-54'-46	conjunction	927 Jul 06 j 01:24	17°☾26'41	0°-23'-36
minimum elong	919 Jun 17 j 09:41	29°II35'22	0°54'47	minimum elong	927 Jul 06 j 01:24	17°☾26'41	0°23'37
max. Earth dist.	919 Jun 17 j 09:59	29°II35'23	30.93026 AU	max. Earth dist.	927 Jul 05 j 16:44	17°☾25'53	30.99557 AU
	919 Jun 28 j 11:38	0°☾		retrograde	927 Oct 18 j 19:16	19°☾56'52	
retrograde	919 Sep 30 j 21:22	2°☾06'52		opposition	928 Jan 04 j 05:17	18°☾33'24	0°-23'-2
opposition	919 Dec 17 j 18:42	0°☾42'52	0°-56'-35	min. Earth dist.	928 Jan 04 j 12:09	18°☾32'55	28.99922 AU
min. Earth dist.	919 Dec 17 j 19:11	0°☾42'50	28.93565 AU	direct	928 Mar 23 j 09:41	17°☾08'16	
	920 Jan 13 j 04:52	30°R II					
direct	920 Mar 05 j 06:49	29°II18'04		conjunction	928 Jul 07 j 15:02	19°☾39'55	0°-19'-30
	920 Apr 25 j 08:47	0°☾		minimum elong	928 Jul 07 j 15:02	19°☾39'55	0°19'31
				max. Earth dist.	928 Jul 07 j 06:13	19°☾39'07	31.00293 AU
conjunction	920 Jun 18 j 23:50	1°☾49'23	0°-51'-5	retrograde	928 Oct 20 j 04:35	22°☾09'54	
minimum elong	920 Jun 18 j 23:50	1°☾49'23	0°51'06	opposition	929 Jan 05 j 15:27	20°☾46'29	0°-18'-39
max. Earth dist.	920 Jun 18 j 23:03	1°☾49'18	30.94063 AU	min. Earth dist.	929 Jan 05 j 23:53	20°☾45'53	29.00713 AU
retrograde	920 Oct 02 j 09:33	4°☾20'45		direct	929 Mar 25 j 20:56	19°☾21'19	
opposition	920 Dec 19 j 04:55	2°☾56'53	0°-52'-37				
min. Earth dist.	920 Dec 19 j 05:27	2°☾56'50	28.94589 AU	conjunction	929 Jul 10 j 04:30	21°☾52'58	0°-15'-23
direct	921 Mar 07 j 18:52	1°☾32'04		minimum elong	929 Jul 10 j 04:30	21°☾52'58	0°15'25
				behind sun begin	929 Jul 10 j 03:04	21°☾52'50	
conjunction	921 Jun 21 j 14:02	4°☾03'29	0°-47'-20	behind sun end	929 Jul 10 j 05:55	21°☾53'06	
minimum elong	921 Jun 21 j 14:02	4°☾03'29	0°47'21	max. Earth dist.	929 Jul 09 j 18:52	21°☾52'05	31.01151 AU
max. Earth dist.	921 Jun 21 j 11:53	4°☾03'17	30.95063 AU	retrograde	929 Oct 22 j 16:16	24°☾22'46	
retrograde	921 Oct 04 j 20:39	6°☾34'44		opposition	930 Jan 08 j 01:38	22°☾59'25	0°-14'-14
opposition	921 Dec 21 j 15:27	5°☾10'57	0°-48'-33	min. Earth dist.	930 Jan 08 j 09:34	22°☾58'51	29.01631 AU
min. Earth dist.	921 Dec 21 j 17:54	5°☾10'47	28.95563 AU	direct	930 Mar 28 j 08:58	21°☾34'13	
direct	922 Mar 10 j 04:45	3°☾46'08					
				conjunction	930 Jul 12 j 17:42	24°☾05'53	0°-11'-15

minimum elong	930 Jul	12 j 17:43	24°  05°53	0°11'17	behind sun end	936 Jul	26 j 04:36	7°  23°26	
behind sun begin	930 Jul	12 j 12:56	24°  05°28		retrograde	936 Nov	06 j 21:08	9°  51°57	
behind sun end	930 Jul	12 j 22:29	24°  06°19		opposition	937 Jan	23 j 01:25	8°  29°10	0°16'52
max. Earth dist.	930 Jul	12 j 07:29	24°  04°57	31.02132 AU	min. Earth dist.	937 Jan	23 j 14:32	8°  28°15	29.09296 AU
retrograde	930 Oct	25 j 02:03	26°  35°32		direct	937 Apr	12 j 20:38	7°  03°57	
opposition	931 Jan	10 j 11:53	25°  12°16	0°-9'-48					
min. Earth dist.	931 Jan	10 j 21:06	25°  11°37	29.02688 AU	conjunction	937 Jul	28 j 14:26	9°  35°50	0°17'54
direct	931 Mar	30 j 18:22	23°  47°03		minimum elong	937 Jul	28 j 14:26	9°  35°50	0°17'54
					max. Earth dist.	937 Jul	27 j 22:33	9°  34°22	31.09696 AU
conjunction	931 Jul	15 j 07:03	26°  18°45	0°-7'-7	retrograde	937 Nov	09 j 06:57	12°  04°29	
minimum elong	931 Jul	15 j 07:02	26°  18°45	0°07'08	opposition	938 Jan	25 j 11:53	10°  041°45	0°21'15
behind sun begin	931 Jul	15 j 00:59	26°  18°13		min. Earth dist.	938 Jan	26 j 02:46	10°  040°42	29.10114 AU
behind sun end	931 Jul	15 j 13:06	26°  19°17		direct	938 Apr	15 j 08:21	9°  16°30	
max. Earth dist.	931 Jul	14 j 20:46	26°  17°49	31.03256 AU	max. Earth dist.	938 Jul	30 j 10:16	11°  046°48	31.10487 AU
retrograde	931 Oct	27 j 11:59	28°  48°15						
opposition	932 Jan	12 j 21:55	27°  25°05	0°-5'-20	conjunction	938 Jul	31 j 03:11	11°  048°22	0°21'59
min. Earth dist.	932 Jan	13 j 07:06	27°  24°26	29.03849 AU	minimum elong	938 Jul	31 j 03:11	11°  048°22	0°21'59
direct	932 Apr	01 j 07:25	25°  59°52		retrograde	938 Nov	11 j 18:23	14°  016°51	
					opposition	939 Jan	27 j 22:08	12°  054°09	0°25'36
conjunction	932 Jul	16 j 20:19	28°  31°38	0°-2'-57	min. Earth dist.	939 Jan	28 j 12:46	12°  053°08	29.10878 AU
minimum elong	932 Jul	16 j 20:20	28°  31°38	0°02'58	direct	939 Apr	17 j 21:03	11°  028°53	
behind sun begin	932 Jul	16 j 13:46	28°  31°03						
behind sun end	932 Jul	17 j 02:54	28°  32°12		conjunction	939 Aug	02 j 15:58	14°  000°43	0°26'02
max. Earth dist.	932 Jul	16 j 08:29	28°  30°32	31.04451 AU	minimum elong	939 Aug	02 j 15:58	14°  000°43	0°26'02
	932 Aug	28 j 03:34	0°  00		max. Earth dist.	939 Aug	01 j 22:21	13°  059°06	31.11235 AU
retrograde	932 Oct	28 j 23:19	1°  01°00			939 Aug	29 j 23:41	15°  00	
	933 Jan	01 j 02:44	30°  00		retrograde	939 Nov	14 j 03:43	16°  029°03	
opposition	933 Jan	14 j 08:10	29°  37°55	0°00'-53	opposition	940 Jan	30 j 08:22	15°  006°24	0°29'55
min. Earth dist.	933 Jan	14 j 18:22	29°  37°12	29.05068 AU	min. Earth dist.	940 Jan	31 j 00:27	15°  005°16	29.11639 AU
asc. node	933 Mar	29 j 00:12	28°  13°17			940 Feb	03 j 03:41	15°  00	
direct	933 Apr	03 j 17:58	28°  12°43		direct	940 Apr	19 j 07:01	13°  041°05	
	933 Jun	29 j 02:44	0°  00			940 Jul	01 j 01:17	15°  00	
					max. Earth dist.	940 Aug	03 j 11:01	16°  011°16	31.12007 AU
conjunction	933 Jul	19 j 09:42	0°  044°32	0°01'19					
minimum elong	933 Jul	19 j 09:41	0°  044°32	0°01'20	conjunction	940 Aug	04 j 04:41	16°  012°54	0°30'02
behind sun begin	933 Jul	19 j 03:06	0°  043°57		minimum elong	940 Aug	04 j 04:41	16°  012°54	0°30'02
behind sun end	933 Jul	19 j 16:17	0°  045°07		retrograde	940 Nov	15 j 12:50	18°  041°05	
max. Earth dist.	933 Jul	18 j 22:01	0°  043°28	31.05661 AU	opposition	941 Jan	31 j 18:39	17°  018°28	0°34'10
retrograde	933 Oct	31 j 09:44	3°  013°46		min. Earth dist.	941 Feb	01 j 10:34	17°  017°22	29.12429 AU
opposition	934 Jan	16 j 18:27	1°  050°47	0°03'34	direct	941 Apr	21 j 20:16	15°  053°08	
min. Earth dist.	934 Jan	17 j 05:33	1°  050°01	29.06253 AU					
direct	934 Apr	06 j 06:23	0°  025°37		conjunction	941 Aug	06 j 17:04	18°  024°57	0°34'00
					minimum elong	941 Aug	06 j 17:04	18°  024°57	0°34'00
conjunction	934 Jul	21 j 22:53	2°  057°27	0°05'31	max. Earth dist.	941 Aug	05 j 22:15	18°  023°12	31.12828 AU
minimum elong	934 Jul	21 j 22:53	2°  057°27	0°05'31	retrograde	941 Nov	17 j 23:11	20°  053°00	
behind sun begin	934 Jul	21 j 16:33	2°  056°53		opposition	942 Feb	03 j 05:00	19°  030°25	0°38'22
behind sun end	934 Jul	22 j 05:13	2°  058°00		min. Earth dist.	942 Feb	03 j 21:23	19°  029°17	29.13313 AU
max. Earth dist.	934 Jul	21 j 09:11	2°  056°11	31.06819 AU	direct	942 Apr	24 j 06:19	18°  005°04	
retrograde	934 Nov	02 j 22:22	5°  026°33		max. Earth dist.	942 Aug	08 j 11:25	20°  035°12	31.13762 AU
opposition	935 Jan	19 j 04:46	4°  003°39	0°08'01					
min. Earth dist.	935 Jan	19 j 16:20	4°  002°50	29.07379 AU	conjunction	942 Aug	09 j 05:32	20°  036°53	0°37'54
direct	935 Apr	08 j 18:20	2°  038°28		minimum elong	942 Aug	09 j 05:32	20°  036°53	0°37'54
					retrograde	942 Nov	20 j 08:44	23°  004°49	
conjunction	935 Jul	24 j 12:08	5°  010°20	0°09'39	opposition	943 Feb	05 j 15:21	21°  042°19	0°42'31
minimum elong	935 Jul	24 j 12:08	5°  010°20	0°09'40	min. Earth dist.	943 Feb	06 j 08:06	21°  041°09	29.14303 AU
behind sun begin	935 Jul	24 j 06:44	5°  009°51		direct	943 Apr	26 j 17:55	20°  016°59	
behind sun end	935 Jul	24 j 17:31	5°  010°49						
max. Earth dist.	935 Jul	23 j 22:33	5°  009°05	31.07885 AU	conjunction	943 Aug	11 j 17:43	22°  048°47	0°41'45
retrograde	935 Nov	05 j 09:07	7°  039°18		minimum elong	943 Aug	11 j 17:43	22°  048°47	0°41'46
opposition	936 Jan	21 j 15:12	6°  016°28	0°12'27	max. Earth dist.	943 Aug	10 j 22:15	22°  046°59	31.14811 AU
min. Earth dist.	936 Jan	22 j 04:22	6°  015°32	29.08389 AU	retrograde	943 Nov	22 j 20:46	25°  016°38	
direct	936 Apr	10 j 07:43	4°  051°16		opposition	944 Feb	08 j 01:41	23°  054°12	0°46'36
max. Earth dist.	936 Jul	25 j 09:42	7°  021°43	31.08845 AU	min. Earth dist.	944 Feb	08 j 18:17	23°  053°03	29.15403 AU
					direct	944 Apr	28 j 05:38	22°  028°54	
conjunction	936 Jul	26 j 01:17	7°  023°09	0°13'47	max. Earth dist.	944 Aug	12 j 11:25	24°  059°01	31.15938 AU
minimum elong	936 Jul	26 j 01:16	7°  023°09	0°13'47					
behind sun begin	936 Jul	25 j 21:56	7°  022°51		conjunction	944 Aug	13 j 06:07	25°  000°45	0°45'33

minimum elong	944 Aug 13 j 06:07	25° Ω 00'45	0°45'33	minimum elong	952 Aug 31 j 05:43	12° $\mathring{\text{M}}$ 35'50	1°12'59
retrograde	944 Nov 24 j 07:12	27° Ω 28'30		retrograde	952 Dec 11 j 17:19	15° $\mathring{\text{M}}$ 02'48	
opposition	945 Feb 09 j 12:08	26° Ω 06'10	0°50'37	opposition	953 Feb 27 j 01:15	13° $\mathring{\text{M}}$ 40'43	1°19'33
min. Earth dist.	945 Feb 10 j 05:54	26° Ω 04'55	29.16550 AU	min. Earth dist.	953 Feb 27 j 22:21	13° $\mathring{\text{M}}$ 39'16	29.22768 AU
direct	945 Apr 30 j 18:36	24° Ω 40'55		direct	953 May 18 j 18:27	12° $\mathring{\text{M}}$ 15'28	
conjunction	945 Aug 15 j 18:16	27° Ω 12'46	0°49'16	conjunction	953 Sep 02 j 17:14	14° $\mathring{\text{M}}$ 47'00	1°15'59
minimum elong	945 Aug 15 j 18:16	27° Ω 12'46	0°49'17	minimum elong	953 Sep 02 j 17:14	14° $\mathring{\text{M}}$ 47'00	1°15'59
max. Earth dist.	945 Aug 14 j 22:12	27° Ω 10'55	31.17094 AU	max. Earth dist.	953 Sep 01 j 18:20	14° $\mathring{\text{M}}$ 44'52	31.22933 AU
retrograde	945 Nov 26 j 19:10	29° Ω 40'27		retrograde	953 Dec 14 j 02:35	17° $\mathring{\text{M}}$ 13'52	
opposition	946 Feb 11 j 22:35	28° Ω 18'12	0°54'34	opposition	954 Mar 01 j 12:08	15° $\mathring{\text{M}}$ 51'46	1°22'41
min. Earth dist.	946 Feb 12 j 15:53	28° Ω 17'00	29.17697 AU	min. Earth dist.	954 Mar 02 j 10:00	15° $\mathring{\text{M}}$ 50'15	29.23275 AU
direct	946 May 03 j 06:54	26° Ω 53'00		direct	954 May 21 j 06:52	14° $\mathring{\text{M}}$ 26'30	
max. Earth dist.	946 Aug 17 j 10:25	29° Ω 23'01	31.18199 AU	max. Earth dist.	954 Sep 04 j 04:37	16° $\mathring{\text{M}}$ 55'46	31.23478 AU
conjunction	946 Aug 18 j 06:22	29° Ω 24'52	0°52'55	conjunction	954 Sep 05 j 04:17	16° $\mathring{\text{M}}$ 57'58	1°18'51
minimum elong	946 Aug 18 j 06:21	29° Ω 24'52	0°52'55	minimum elong	954 Sep 05 j 04:17	16° $\mathring{\text{M}}$ 57'58	1°18'51
	946 Sep 03 j 03:43	0° $\mathring{\text{M}}$		retrograde	954 Dec 16 j 13:51	19° $\mathring{\text{M}}$ 24'46	
retrograde	946 Nov 29 j 05:34	1° $\mathring{\text{M}}$ 52'28		opposition	955 Mar 03 j 22:49	18° $\mathring{\text{M}}$ 02'41	1°25'42
opposition	947 Feb 14 j 09:17	0° $\mathring{\text{M}}$ 30'17	0°58'25	min. Earth dist.	955 Mar 04 j 19:35	18° $\mathring{\text{M}}$ 01'15	29.23868 AU
min. Earth dist.	947 Feb 15 j 04:11	0° $\mathring{\text{M}}$ 28'58	29.18771 AU	direct	955 May 23 j 18:55	16° $\mathring{\text{M}}$ 37'25	
	947 Mar 04 j 22:21	30° $\mathring{\text{R}}$ Ω					
direct	947 May 05 j 18:50	29° Ω 05'07		conjunction	955 Sep 07 j 15:34	19° $\mathring{\text{M}}$ 08'51	1°21'37
	947 Jul 04 j 13:52	0° $\mathring{\text{M}}$		minimum elong	955 Sep 07 j 15:34	19° $\mathring{\text{M}}$ 08'51	1°21'37
conjunction	947 Aug 20 j 18:29	1° $\mathring{\text{M}}$ 36'59	0°56'30	max. Earth dist.	955 Sep 06 j 16:34	19° $\mathring{\text{M}}$ 06'43	31.24110 AU
minimum elong	947 Aug 20 j 18:29	1° $\mathring{\text{M}}$ 36'59	0°56'30	retrograde	955 Dec 18 j 23:52	21° $\mathring{\text{M}}$ 35'35	
max. Earth dist.	947 Aug 19 j 21:32	1° $\mathring{\text{M}}$ 35'03	31.19218 AU	opposition	956 Mar 05 j 09:35	20° $\mathring{\text{M}}$ 13'32	1°28'35
retrograde	947 Dec 01 j 17:34	4° $\mathring{\text{M}}$ 04'29		min. Earth dist.	956 Mar 06 j 07:18	20° $\mathring{\text{M}}$ 12'02	29.24557 AU
opposition	948 Feb 16 j 19:44	2° $\mathring{\text{M}}$ 42'22	1°02'12	direct	956 May 25 j 06:58	18° $\mathring{\text{M}}$ 48'19	
min. Earth dist.	948 Feb 17 j 14:25	2° $\mathring{\text{M}}$ 41'04	29.19724 AU	max. Earth dist.	956 Sep 08 j 03:31	21° $\mathring{\text{M}}$ 17'34	31.24847 AU
direct	948 May 07 j 08:14	1° $\mathring{\text{M}}$ 17'13		conjunction	956 Sep 09 j 02:41	21° $\mathring{\text{M}}$ 19'43	1°24'16
max. Earth dist.	948 Aug 21 j 08:56	3° $\mathring{\text{M}}$ 47'03	31.20093 AU	minimum elong	956 Sep 09 j 02:41	21° $\mathring{\text{M}}$ 19'43	1°24'15
conjunction	948 Aug 22 j 06:39	3° $\mathring{\text{M}}$ 49'04	0°59'59	retrograde	956 Dec 20 j 11:30	23° $\mathring{\text{M}}$ 46'25	
minimum elong	948 Aug 22 j 06:39	3° $\mathring{\text{M}}$ 49'04	0°59'59	opposition	957 Mar 07 j 20:24	22° $\mathring{\text{M}}$ 24'25	1°31'21
retrograde	948 Dec 03 j 02:59	6° $\mathring{\text{M}}$ 16'28		min. Earth dist.	957 Mar 08 j 17:11	22° $\mathring{\text{M}}$ 22'59	29.25321 AU
opposition	949 Feb 18 j 06:31	4° $\mathring{\text{M}}$ 54'23	1°05'52	direct	957 May 27 j 20:17	20° $\mathring{\text{M}}$ 59'16	
min. Earth dist.	949 Feb 19 j 02:38	4° $\mathring{\text{M}}$ 52'59	29.20545 AU	conjunction	957 Sep 11 j 13:39	23° $\mathring{\text{M}}$ 30'39	1°26'47
direct	949 May 09 j 19:07	3° $\mathring{\text{M}}$ 29'14		minimum elong	957 Sep 11 j 13:39	23° $\mathring{\text{M}}$ 30'39	1°26'48
conjunction	949 Aug 24 j 18:36	6° $\mathring{\text{M}}$ 01'02	1°03'23	max. Earth dist.	957 Sep 10 j 14:30	23° $\mathring{\text{M}}$ 28'30	31.25625 AU
minimum elong	949 Aug 24 j 18:36	6° $\mathring{\text{M}}$ 01'02	1°03'23	retrograde	957 Dec 22 j 21:15	25° $\mathring{\text{M}}$ 57'21	
max. Earth dist.	949 Aug 23 j 20:46	5° $\mathring{\text{M}}$ 59'01	31.20841 AU	opposition	958 Mar 10 j 07:24	24° $\mathring{\text{M}}$ 35'24	1°33'59
retrograde	949 Dec 05 j 11:49	8° $\mathring{\text{M}}$ 28'20		min. Earth dist.	958 Mar 11 j 05:00	24° $\mathring{\text{M}}$ 33'55	29.26117 AU
opposition	950 Feb 20 j 17:15	7° $\mathring{\text{M}}$ 06'17	1°09'27	direct	958 May 30 j 06:56	23° $\mathring{\text{M}}$ 10'19	
min. Earth dist.	950 Feb 21 j 13:21	7° $\mathring{\text{M}}$ 04'53	29.21222 AU	max. Earth dist.	958 Sep 13 j 02:01	25° $\mathring{\text{M}}$ 39'35	31.26408 AU
direct	950 May 12 j 08:23	5° $\mathring{\text{M}}$ 41'07		conjunction	958 Sep 14 j 00:41	25° $\mathring{\text{M}}$ 41'42	1°29'11
max. Earth dist.	950 Aug 26 j 07:15	8° $\mathring{\text{M}}$ 10'42	31.21456 AU	minimum elong	958 Sep 14 j 00:40	25° $\mathring{\text{M}}$ 41'42	1°29'11
conjunction	950 Aug 27 j 06:26	8° $\mathring{\text{M}}$ 12'51	1°06'41	retrograde	958 Dec 25 j 06:21	28° $\mathring{\text{M}}$ 08'22	
minimum elong	950 Aug 27 j 06:26	8° $\mathring{\text{M}}$ 12'51	1°06'41	opposition	959 Mar 12 j 18:17	26° $\mathring{\text{M}}$ 46'30	1°36'28
retrograde	950 Dec 07 j 21:53	10° $\mathring{\text{M}}$ 40'02		min. Earth dist.	959 Mar 13 j 15:36	26° $\mathring{\text{M}}$ 45'02	29.26871 AU
opposition	951 Feb 23 j 03:53	9° $\mathring{\text{M}}$ 17'59	1°12'56	direct	959 Jun 01 j 19:38	25° $\mathring{\text{M}}$ 21'29	
min. Earth dist.	951 Feb 24 j 00:38	9° $\mathring{\text{M}}$ 16'32	29.21802 AU	max. Earth dist.	959 Sep 15 j 11:56	27° $\mathring{\text{M}}$ 50'38	31.27118 AU
direct	951 May 14 j 18:24	7° $\mathring{\text{M}}$ 52'47		conjunction	959 Sep 16 j 11:38	27° $\mathring{\text{M}}$ 52'51	1°31'27
conjunction	951 Aug 29 j 18:14	10° $\mathring{\text{M}}$ 24'28	1°09'53	minimum elong	959 Sep 16 j 11:38	27° $\mathring{\text{M}}$ 52'50	1°31'28
minimum elong	951 Aug 29 j 18:13	10° $\mathring{\text{M}}$ 24'28	1°09'54		959 Nov 23 j 20:03	0° Ω	
max. Earth dist.	951 Aug 28 j 19:35	10° $\mathring{\text{M}}$ 22'22	31.21987 AU	retrograde	959 Dec 27 j 16:54	0° Ω 19'30	
retrograde	951 Dec 10 j 06:39	12° $\mathring{\text{M}}$ 51'32			960 Jan 31 j 08:27	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$	
opposition	952 Feb 25 j 14:37	11° $\mathring{\text{M}}$ 29'28	1°16'18	opposition	960 Mar 14 j 05:23	28° $\mathring{\text{M}}$ 57'41	1°38'49
min. Earth dist.	952 Feb 26 j 11:59	11° $\mathring{\text{M}}$ 27'59	29.22292 AU	min. Earth dist.	960 Mar 15 j 03:02	28° $\mathring{\text{M}}$ 56'12	29.27544 AU
direct	952 May 16 j 06:46	10° $\mathring{\text{M}}$ 04'14		direct	960 Jun 03 j 05:22	27° $\mathring{\text{M}}$ 32'42	
max. Earth dist.	952 Aug 30 j 05:46	12° $\mathring{\text{M}}$ 33'37	31.22457 AU		960 Sep 16 j 03:16	0° Ω	
conjunction	952 Aug 31 j 05:44	12° $\mathring{\text{M}}$ 35'50	1°12'59	conjunction	960 Sep 17 j 22:37	0° Ω 04'03	1°33'35
				minimum elong	960 Sep 17 j 22:37	0° Ω 04'03	1°33'35

max. Earth dist.	960 Sep 16 j 23:42	0° 2 01'54	31.27721 AU	retrograde	969 Jan 15 j 11:39	19° 2 56'58	
retrograde	960 Dec 29 j 01:47	2° 2 30'42		opposition	969 Apr 03 j 11:03	18° 2 35'02	1°53'16
opposition	961 Mar 16 j 16:37	1° 2 08'55	1°41'02	min. Earth dist.	969 Apr 04 j 07:24	18° 2 33'39	29.29940 AU
min. Earth dist.	961 Mar 17 j 14:45	1° 2 07'23	29.28078 AU	direct	969 Jun 23 j 17:45	17° 2 10'13	
	961 May 04 j 12:00	30° R 17					
direct	961 Jun 05 j 17:28	29° 17 43'59		conjunction	969 Oct 07 j 20:04	19° 2 40'52	1°46'26
	961 Jul 07 j 10:20	0° 2		minimum elong	969 Oct 07 j 20:04	19° 2 40'52	1°46'27
max. Earth dist.	961 Sep 19 j 09:13	2° 2 13'00	31.28192 AU	max. Earth dist.	969 Oct 06 j 23:16	19° 2 38'55	31.30021 AU
				retrograde	970 Jan 17 j 20:17	22° 2 07'23	
conjunction	961 Sep 20 j 09:24	2° 2 15'16	1°35'35	opposition	970 Apr 05 j 22:35	20° 2 45'28	1°54'05
minimum elong	961 Sep 20 j 09:24	2° 2 15'16	1°35'35	min. Earth dist.	970 Apr 06 j 18:51	20° 2 44'05	29.30360 AU
retrograde	961 Dec 31 j 12:38	4° 2 41'54		direct	970 Jun 26 j 05:55	19° 2 20'44	
opposition	962 Mar 19 j 03:50	3° 2 20'07	1°43'06	max. Earth dist.	970 Oct 09 j 08:29	21° 2 49'19	31.30457 AU
min. Earth dist.	962 Mar 20 j 01:35	3° 2 18'38	29.28493 AU				
direct	962 Jun 08 j 04:29	1° 2 55'13		conjunction	970 Oct 10 j 05:53	21° 2 51'19	1°47'08
				minimum elong	970 Oct 10 j 05:53	21° 2 51'19	1°47'07
conjunction	962 Sep 22 j 20:09	4° 2 26'26	1°37'27	retrograde	971 Jan 20 j 06:47	24° 2 17'53	
minimum elong	962 Sep 22 j 20:09	4° 2 26'26	1°37'26	opposition	971 Apr 08 j 10:06	22° 2 56'00	1°54'44
max. Earth dist.	962 Sep 21 j 20:54	4° 2 24'16	31.28528 AU	min. Earth dist.	971 Apr 09 j 05:28	22° 2 54'40	29.30792 AU
retrograde	963 Jan 02 j 21:51	6° 2 53'03		direct	971 Jun 28 j 16:10	21° 2 31'19	
opposition	963 Mar 21 j 15:09	5° 2 31'15	1°45'00				
min. Earth dist.	963 Mar 22 j 13:54	5° 2 29'42	29.28764 AU	conjunction	971 Oct 12 j 15:57	24° 2 01'52	1°47'39
direct	963 Jun 10 j 16:09	4° 2 06'22		minimum elong	971 Oct 12 j 15:57	24° 2 01'52	1°47'40
max. Earth dist.	963 Sep 24 j 06:33	6° 2 35'15	31.28745 AU	max. Earth dist.	971 Oct 11 j 19:53	23° 2 59'59	31.30859 AU
				retrograde	972 Jan 22 j 16:03	26° 2 28'29	
conjunction	963 Sep 25 j 06:44	6° 2 37'30	1°39'10	opposition	972 Apr 09 j 21:48	25° 2 06'37	1°55'13
minimum elong	963 Sep 25 j 06:44	6° 2 37'30	1°39'10	min. Earth dist.	972 Apr 10 j 17:52	25° 2 05'15	29.31162 AU
retrograde	964 Jan 05 j 08:57	9° 2 04'05		direct	972 Jun 30 j 02:54	23° 2 42'01	
opposition	964 Mar 23 j 02:14	7° 2 42'16	1°46'46	max. Earth dist.	972 Oct 13 j 05:19	26° 2 10'34	31.31192 AU
min. Earth dist.	964 Mar 24 j 00:03	7° 2 40'46	29.28931 AU				
direct	964 Jun 12 j 03:48	6° 2 17'21		conjunction	972 Oct 14 j 01:53	26° 2 12'30	1°48'02
				minimum elong	972 Oct 14 j 01:53	26° 2 12'30	1°48'01
conjunction	964 Sep 26 j 17:20	8° 2 48'25	1°40'45	retrograde	973 Jan 24 j 03:36	28° 2 39'11	
minimum elong	964 Sep 26 j 17:20	8° 2 48'25	1°40'44	opposition	973 Apr 12 j 09:35	27° 2 17'19	1°55'32
max. Earth dist.	964 Sep 25 j 17:45	8° 2 46'13	31.28868 AU	min. Earth dist.	973 Apr 13 j 04:22	27° 2 16'02	29.31440 AU
retrograde	965 Jan 06 j 19:12	11° 2 14'58		direct	973 Jul 02 j 14:06	25° 2 52'46	
opposition	965 Mar 25 j 13:39	9° 2 53'06	1°48'23				
min. Earth dist.	965 Mar 26 j 12:23	9° 2 51'33	29.29038 AU	conjunction	973 Oct 16 j 11:47	28° 2 23'12	1°48'15
direct	965 Jun 14 j 16:42	8° 2 28'12		minimum elong	973 Oct 16 j 11:47	28° 2 23'12	1°48'16
max. Earth dist.	965 Sep 28 j 04:07	10° 2 56'58	31.28969 AU	max. Earth dist.	973 Oct 15 j 15:52	28° 2 21'20	31.31401 AU
					973 Dec 02 j 07:26	0° 2	
conjunction	965 Sep 29 j 03:32	10° 2 59'09	1°42'11	retrograde	974 Jan 26 j 14:21	0° 2 49'56	
minimum elong	965 Sep 29 j 03:32	10° 2 59'09	1°42'11		974 Mar 25 j 19:06	30° R 2	
retrograde	966 Jan 09 j 06:35	13° 2 25'40		opposition	974 Apr 14 j 21:36	29° 2 28'04	1°55'42
opposition	966 Mar 28 j 00:56	12° 2 03'45	1°49'51	min. Earth dist.	974 Apr 15 j 17:13	29° 2 26'44	29.31589 AU
min. Earth dist.	966 Mar 28 j 22:27	12° 2 02'17	29.29142 AU	direct	974 Jul 05 j 02:04	28° 2 03'35	
direct	966 Jun 17 j 06:39	10° 2 38'50			974 Oct 03 j 16:43	0° 2	
conjunction	966 Oct 01 j 13:46	13° 2 09'42	1°43'28	conjunction	974 Oct 18 j 21:44	0° 2 33'56	1°48'20
minimum elong	966 Oct 01 j 13:46	13° 2 09'42	1°43'27	minimum elong	974 Oct 18 j 21:44	0° 2 33'56	1°48'19
max. Earth dist.	966 Sep 30 j 14:37	13° 2 07'33	31.29091 AU	max. Earth dist.	974 Oct 18 j 01:54	0° 2 32'05	31.31484 AU
retrograde	967 Jan 11 j 16:00	15° 2 36'12		retrograde	975 Jan 29 j 01:57	3° 2 00'43	
opposition	967 Mar 30 j 12:12	14° 2 14'15	1°51'09	opposition	975 Apr 17 j 09:19	1° 2 38'50	1°55'41
min. Earth dist.	967 Mar 31 j 10:03	14° 2 12'45	29.29316 AU	min. Earth dist.	975 Apr 18 j 03:55	1° 2 37'34	29.31590 AU
direct	967 Jun 19 j 17:41	12° 2 49'20		direct	975 Jul 07 j 15:16	0° 2 14'23	
				max. Earth dist.	975 Oct 20 j 11:42	2° 2 42'48	31.31411 AU
conjunction	967 Oct 03 j 23:59	15° 2 20'07	1°44'37				
minimum elong	967 Oct 03 j 23:58	15° 2 20'07	1°44'37	conjunction	975 Oct 21 j 07:38	2° 2 44'40	1°48'14
max. Earth dist.	967 Oct 03 j 01:56	15° 2 18'04	31.29309 AU	minimum elong	975 Oct 21 j 07:38	2° 2 44'40	1°48'15
retrograde	968 Jan 14 j 01:00	17° 2 46'36		retrograde	976 Jan 31 j 12:22	5° 2 11'30	
opposition	968 Mar 31 j 23:35	16° 2 24'39	1°52'17	opposition	976 Apr 18 j 21:21	3° 2 49'34	1°55'31
min. Earth dist.	968 Apr 01 j 20:27	16° 2 23'13	29.29575 AU	min. Earth dist.	976 Apr 19 j 16:28	3° 2 48'17	29.31458 AU
direct	968 Jun 21 j 07:08	14° 2 59'46		direct	976 Jul 09 j 02:23	2° 2 25'09	
max. Earth dist.	968 Oct 04 j 11:37	17° 2 28'24	31.29619 AU				
				conjunction	976 Oct 22 j 17:25	4° 2 55'21	1°48'00
conjunction	968 Oct 05 j 09:58	17° 2 30'29	1°45'36	minimum elong	976 Oct 22 j 17:25	4° 2 55'21	1°48'00
minimum elong	968 Oct 05 j 09:58	17° 2 30'29	1°45'36	max. Earth dist.	976 Oct 21 j 22:32	4° 2 53'35	31.31222 AU

retrograde	977 Feb 01 j 21:53	7°M22'12		retrograde	985 Feb 19 j 10:42	24°M47'25	
opposition	977 Apr 21 j 09:22	6°M00'15	1°55'11	opposition	985 May 09 j 10:51	23°M25'16	1°46'39
min. Earth dist.	977 Apr 22 j 03:41	5°M59'00	29.31208 AU	min. Earth dist.	985 May 10 j 00:01	23°M24'22	29.29975 AU
direct	977 Jul 11 j 16:23	4°M35'50		direct	985 Jul 29 j 09:40	22°M01'17	
max. Earth dist.	977 Oct 24 j 07:41	7°M04'08	31.30945 AU				
conjunction	977 Oct 25 j 02:59	7°M05'56	1°47'37	conjunction	985 Nov 11 j 06:17	24°M30'50	1°39'01
minimum elong	977 Oct 25 j 02:59	7°M05'56	1°47'38	minimum elong	985 Nov 11 j 06:17	24°M30'50	1°39'02
retrograde	978 Feb 04 j 08:58	9°M32'50		max. Earth dist.	985 Nov 10 j 17:50	24°M29'40	31.29764 AU
opposition	978 Apr 23 j 21:19	8°M10'49	1°54'41	retrograde	986 Feb 21 j 21:37	26°M58'29	
min. Earth dist.	978 Apr 24 j 15:07	8°M09'36	29.30922 AU	opposition	986 May 11 j 23:17	25°M36'18	1°44'53
direct	978 Jul 14 j 03:40	6°M46'25		min. Earth dist.	986 May 12 j 11:36	25°M35'28	29.29715 AU
				direct	986 Jul 31 j 23:38	24°M12'23	
conjunction	978 Oct 27 j 12:32	9°M16'26	1°47'04	conjunction	986 Nov 13 j 15:39	26°M41'52	1°37'17
minimum elong	978 Oct 27 j 12:32	9°M16'26	1°47'03	minimum elong	986 Nov 13 j 15:40	26°M41'52	1°37'16
max. Earth dist.	978 Oct 26 j 18:57	9°M14'46	31.30653 AU	max. Earth dist.	986 Nov 13 j 02:38	26°M40'39	31.29440 AU
retrograde	979 Feb 06 j 17:28	11°M43'22		retrograde	987 Feb 24 j 10:03	29°M09'37	
opposition	979 Apr 26 j 09:24	10°M21'18	1°54'01	opposition	987 May 14 j 11:51	27°M47'24	1°42'57
min. Earth dist.	979 Apr 27 j 02:51	10°M20'07	29.30634 AU	min. Earth dist.	987 May 14 j 23:42	27°M46'36	29.29319 AU
direct	979 Jul 16 j 16:30	8°M56'56		direct	987 Aug 03 j 11:23	26°M23'30	
conjunction	979 Oct 29 j 21:54	11°M26'50	1°46'22	conjunction	987 Nov 16 j 01:11	28°M52'55	1°35'24
minimum elong	979 Oct 29 j 21:54	11°M26'50	1°46'22	minimum elong	987 Nov 16 j 01:11	28°M52'55	1°35'25
max. Earth dist.	979 Oct 29 j 04:04	11°M25'10	31.30397 AU	max. Earth dist.	987 Nov 15 j 13:35	28°M51'49	31.28962 AU
retrograde	980 Feb 09 j 03:35	13°M53'50			987 Dec 16 j 18:07	0° \nearrow	
opposition	980 Apr 27 j 21:23	12°M31'45	1°53'12	retrograde	988 Feb 26 j 19:00	1° \nearrow 20'45	
min. Earth dist.	980 Apr 28 j 13:22	12°M30'39	29.30418 AU		988 May 15 j 01:50	30°RM	
direct	980 Jul 18 j 03:01	11°M07'24		opposition	988 May 16 j 00:30	29°M58'28	1°40'52
				min. Earth dist.	988 May 16 j 12:15	29°M57'41	29.28753 AU
conjunction	980 Oct 31 j 07:24	13°M37'15	1°45'32	direct	988 Aug 05 j 00:20	28°M34'36	
minimum elong	980 Oct 31 j 07:24	13°M37'15	1°45'31		988 Oct 19 j 06:19	0° \nearrow	
max. Earth dist.	980 Oct 30 j 15:24	13°M35'44	31.30221 AU				
	980 Dec 09 j 03:56	15°M		conjunction	988 Nov 17 j 10:32	1° \nearrow 03'54	1°33'24
retrograde	981 Feb 10 j 12:51	16°M04'20		minimum elong	988 Nov 17 j 10:32	1° \nearrow 03'54	1°33'23
	981 Apr 19 j 08:52	15°RM		max. Earth dist.	988 Nov 16 j 22:29	1° \nearrow 02'46	31.28340 AU
opposition	981 Apr 30 j 09:40	14°M42'13	1°52'13	retrograde	989 Feb 28 j 05:45	3° \nearrow 31'49	
min. Earth dist.	981 May 01 j 01:38	14°M41'08	29.30283 AU	opposition	989 May 18 j 13:09	2° \nearrow 09'28	1°38'39
direct	981 Jul 20 j 13:25	13°M17'57		min. Earth dist.	989 May 18 j 23:40	2° \nearrow 08'45	29.28065 AU
	981 Oct 12 j 04:18	15°M		direct	989 Aug 07 j 11:59	0° \nearrow 45'36	
conjunction	981 Nov 02 j 16:38	15°M47'42	1°44'32	conjunction	989 Nov 19 j 19:52	3° \nearrow 14'47	1°31'15
minimum elong	981 Nov 02 j 16:38	15°M47'42	1°44'32	minimum elong	989 Nov 19 j 19:52	3° \nearrow 14'47	1°31'16
max. Earth dist.	981 Nov 02 j 00:52	15°M46'13	31.30138 AU	max. Earth dist.	989 Nov 19 j 09:19	3° \nearrow 13'48	31.27597 AU
retrograde	982 Feb 13 j 00:18	18°M14'54		retrograde	990 Mar 02 j 15:11	5° \nearrow 42'47	
opposition	982 May 02 j 21:46	16°M52'47	1°51'04	opposition	990 May 21 j 01:52	4° \nearrow 20'20	1°36'18
min. Earth dist.	982 May 03 j 11:52	16°M51'49	29.30221 AU	min. Earth dist.	990 May 21 j 12:38	4° \nearrow 19'36	29.27278 AU
direct	982 Jul 23 j 00:11	15°M28'34		direct	990 Aug 09 j 23:41	2° \nearrow 56'28	
max. Earth dist.	982 Nov 04 j 11:19	17°M56'54	31.30091 AU				
conjunction	982 Nov 05 j 02:03	17°M58'17	1°43'22	conjunction	990 Nov 22 j 05:05	5° \nearrow 25'32	1°28'59
minimum elong	982 Nov 05 j 02:03	17°M58'17	1°43'22	minimum elong	990 Nov 22 j 05:05	5° \nearrow 25'32	1°28'58
retrograde	983 Feb 15 j 11:22	20°M25'36		max. Earth dist.	990 Nov 21 j 18:48	5° \nearrow 24'34	31.26800 AU
opposition	983 May 05 j 09:57	19°M03'28	1°49'45	retrograde	991 Mar 05 j 02:05	7° \nearrow 53'36	
min. Earth dist.	983 May 06 j 00:27	19°M02'29	29.30182 AU	opposition	991 May 23 j 14:16	6° \nearrow 31'04	1°33'48
direct	983 Jul 25 j 11:12	17°M39'21		min. Earth dist.	991 May 23 j 23:10	6° \nearrow 30'27	29.26468 AU
				direct	991 Aug 12 j 11:13	5° \nearrow 07'11	
conjunction	983 Nov 07 j 11:28	20°M09'01	1°42'04	conjunction	991 Nov 24 j 14:19	7° \nearrow 36'09	1°26'35
minimum elong	983 Nov 07 j 11:28	20°M09'01	1°42'05	minimum elong	991 Nov 24 j 14:19	7° \nearrow 36'09	1°26'35
max. Earth dist.	983 Nov 06 j 21:29	20°M07'42	31.30054 AU	max. Earth dist.	991 Nov 24 j 05:06	7° \nearrow 35'17	31.26000 AU
retrograde	984 Feb 17 j 23:25	22°M36'26		retrograde	992 Mar 06 j 12:43	10° \nearrow 04'19	
opposition	984 May 06 j 22:17	21°M14'18	1°48'17	opposition	992 May 25 j 03:02	8° \nearrow 41'42	1°31'11
min. Earth dist.	984 May 07 j 11:18	21°M13'25	29.30111 AU	min. Earth dist.	992 May 25 j 11:55	8° \nearrow 41'06	29.25702 AU
direct	984 Jul 26 j 23:07	19°M50'15		direct	992 Aug 13 j 21:54	7° \nearrow 17'50	
conjunction	984 Nov 08 j 20:46	22°M19'52	1°40'37	conjunction	992 Nov 25 j 23:22	9° \nearrow 46'43	1°24'04
minimum elong	984 Nov 08 j 20:46	22°M19'52	1°40'37	minimum elong	992 Nov 25 j 23:23	9° \nearrow 46'43	1°24'03
max. Earth dist.	984 Nov 08 j 07:00	22°M18'34	31.29952 AU	max. Earth dist.	992 Nov 25 j 15:31	9° \nearrow 45'58	31.25282 AU

retrograde	993 Mar 09 j 00:12	12°♂15'00		direct	1001 Sep 03 j 05:03	26°♂58'57	
opposition	993 May 27 j 15:41	10°♂52'19	1°28'25				
min. Earth dist.	993 May 27 j 22:31	10°♂51'51	29.25018 AU	conjunction	1001 Dec 15 j 11:00	29°♂27'24	0°56'19
direct	993 Aug 16 j 09:21	9°♂28'29		minimum elong	1001 Dec 15 j 11:00	29°♂27'24	0°56'20
				max. Earth dist.	1001 Dec 15 j 10:27	29°♂27'21	31.19376 AU
conjunction	993 Nov 28 j 08:31	11°♂57'18	1°21'25		1001 Dec 29 j 21:22	0°♂	
minimum elong	993 Nov 28 j 08:31	11°♂57'18	1°21'26	retrograde	1002 Mar 29 j 07:05	1°♂57'03	
max. Earth dist.	993 Nov 28 j 01:09	11°♂56'37	31.24649 AU	opposition	1002 Jun 17 j 11:41	0°♂33'59	0°58'17
retrograde	994 Mar 11 j 12:02	14°♂25'44		min. Earth dist.	1002 Jun 17 j 11:24	0°♂34'00	29.18873 AU
opposition	994 May 30 j 04:19	13°♂03'00	1°25'32		1002 Jul 09 j 01:21	30°♂♂	
min. Earth dist.	994 May 30 j 10:50	13°♂02'33	29.24435 AU	direct	1002 Sep 05 j 16:04	29°♂10'34	
direct	994 Aug 18 j 19:22	11°♂39'13			1002 Oct 31 j 04:40	0°♂	
conjunction	994 Nov 30 j 17:44	14°♂08'00	1°18'40	conjunction	1002 Dec 17 j 20:21	1°♂38'57	0°52'46
minimum elong	994 Nov 30 j 17:44	14°♂08'00	1°18'39	minimum elong	1002 Dec 17 j 20:21	1°♂38'57	0°52'46
max. Earth dist.	994 Nov 30 j 12:15	14°♂07'29	31.24108 AU	max. Earth dist.	1002 Dec 17 j 19:55	1°♂38'55	31.18312 AU
retrograde	995 Mar 13 j 23:30	16°♂36'34		retrograde	1003 Mar 31 j 19:19	4°♂08'43	
opposition	995 Jun 01 j 17:00	15°♂13'49	1°22'31	opposition	1003 Jun 20 j 00:45	2°♂45'32	0°54'27
min. Earth dist.	995 Jun 01 j 22:08	15°♂13'28	29.23905 AU	min. Earth dist.	1003 Jun 20 j 00:21	2°♂45'34	29.17800 AU
direct	995 Aug 21 j 08:32	13°♂50'07		direct	1003 Sep 08 j 02:39	1°♂22'07	
conjunction	995 Dec 03 j 02:44	16°♂18'52	1°15'47	conjunction	1003 Dec 20 j 05:41	3°♂50'24	0°49'09
minimum elong	995 Dec 03 j 02:45	16°♂18'52	1°15'47	minimum elong	1003 Dec 20 j 05:41	3°♂50'24	0°49'09
max. Earth dist.	995 Dec 02 j 21:12	16°♂18'20	31.23605 AU	max. Earth dist.	1003 Dec 20 j 07:14	3°♂50'33	31.17245 AU
retrograde	996 Mar 15 j 12:46	18°♂47'36		retrograde	1004 Apr 02 j 07:10	6°♂20'17	
opposition	996 Jun 03 j 05:49	17°♂24'49	1°19'23	opposition	1004 Jun 21 j 13:45	4°♂57'00	0°50'32
min. Earth dist.	996 Jun 03 j 10:00	17°♂24'32	29.23413 AU	min. Earth dist.	1004 Jun 21 j 11:51	4°♂57'07	29.16747 AU
direct	996 Aug 22 j 19:32	16°♂01'12		direct	1004 Sep 09 j 15:39	3°♂33'34	
conjunction	996 Dec 04 j 12:03	18°♂29'55	1°12'47	conjunction	1004 Dec 21 j 14:57	6°♂01'47	0°45'27
minimum elong	996 Dec 04 j 12:04	18°♂29'55	1°12'47	minimum elong	1004 Dec 21 j 14:58	6°♂01'47	0°45'26
max. Earth dist.	996 Dec 04 j 08:26	18°♂29'35	31.23111 AU	max. Earth dist.	1004 Dec 21 j 16:33	6°♂01'56	31.16239 AU
retrograde	997 Mar 17 j 22:48	20°♂58'49		retrograde	1005 Apr 04 j 20:35	8°♂31'48	
opposition	997 Jun 05 j 18:45	19°♂36'02	1°16'07	opposition	1005 Jun 24 j 02:43	7°♂08'24	0°46'32
min. Earth dist.	997 Jun 05 j 22:28	19°♂35'47	29.22898 AU	min. Earth dist.	1005 Jun 23 j 23:41	7°♂08'36	29.15797 AU
direct	997 Aug 25 j 07:45	18°♂12'29		direct	1005 Sep 12 j 02:07	5°♂44'59	
conjunction	997 Dec 06 j 21:13	20°♂41'10	1°09'41	conjunction	1005 Dec 24 j 00:23	8°♂13'08	0°41'41
minimum elong	997 Dec 06 j 21:13	20°♂41'10	1°09'41	minimum elong	1005 Dec 24 j 00:24	8°♂13'08	0°41'41
max. Earth dist.	997 Dec 06 j 17:27	20°♂40'49	31.22582 AU	max. Earth dist.	1005 Dec 24 j 04:06	8°♂13'29	31.15337 AU
retrograde	998 Mar 20 j 10:37	23°♂10'14		retrograde	1006 Apr 07 j 07:04	10°♂43'17	
opposition	998 Jun 08 j 07:39	21°♂47'26	1°12'45	opposition	1006 Jun 26 j 15:42	9°♂19'50	0°42'29
min. Earth dist.	998 Jun 08 j 10:01	21°♂47'16	29.22328 AU	min. Earth dist.	1006 Jun 26 j 11:50	9°♂20'05	29.14942 AU
direct	998 Aug 27 j 19:21	20°♂23'57		direct	1006 Sep 14 j 14:23	7°♂56'26	
conjunction	998 Dec 09 j 06:40	22°♂52'36	1°06'29	conjunction	1006 Dec 26 j 09:45	10°♂24'32	0°37'51
minimum elong	998 Dec 09 j 06:40	22°♂52'36	1°06'28	minimum elong	1006 Dec 26 j 09:45	10°♂24'32	0°37'50
max. Earth dist.	998 Dec 09 j 04:16	22°♂52'23	31.21957 AU	max. Earth dist.	1006 Dec 26 j 13:40	10°♂24'55	31.14545 AU
retrograde	999 Mar 22 j 21:15	25°♂21'50		retrograde	1007 Apr 09 j 20:00	12°♂54'50	
opposition	999 Jun 10 j 20:37	23°♂58'59	1°09'17	opposition	1007 Jun 29 j 04:34	11°♂31'20	0°38'21
min. Earth dist.	999 Jun 10 j 23:18	23°♂58'48	29.21646 AU	min. Earth dist.	1007 Jun 28 j 23:00	11°♂31'42	29.14197 AU
direct	999 Aug 30 j 06:57	22°♂35'33		direct	1007 Sep 17 j 02:19	10°♂07'59	
conjunction	999 Dec 11 j 16:06	25°♂04'09	1°03'11	conjunction	1007 Dec 28 j 19:16	12°♂36'04	0°33'58
minimum elong	999 Dec 11 j 16:06	25°♂04'09	1°03'12	minimum elong	1007 Dec 28 j 19:16	12°♂36'04	0°33'58
max. Earth dist.	999 Dec 11 j 13:55	25°♂03'57	31.21227 AU	max. Earth dist.	1007 Dec 29 j 00:54	12°♂36'35	31.13838 AU
retrograde	1000 Mar 24 j 08:47	27°♂33'33		retrograde	1008 Apr 11 j 07:32	15°♂06'32	
opposition	1000 Jun 12 j 09:39	26°♂10'39	1°05'42	opposition	1008 Jun 30 j 17:44	13°♂42'58	0°34'10
min. Earth dist.	1000 Jun 12 j 10:36	26°♂10'35	29.20843 AU	min. Earth dist.	1008 Jun 30 j 12:03	13°♂43'22	29.13523 AU
direct	1000 Aug 31 j 18:34	24°♂47'15		direct	1008 Sep 18 j 14:02	12°♂19'41	
conjunction	1000 Dec 13 j 01:29	27°♂15'47	0°59'48	conjunction	1008 Dec 30 j 04:45	14°♂47'44	0°30'01
minimum elong	1000 Dec 13 j 01:29	27°♂15'47	0°59'47	minimum elong	1008 Dec 30 j 04:45	14°♂47'44	0°30'00
max. Earth dist.	1000 Dec 12 j 23:53	27°♂15'38	31.20355 AU	max. Earth dist.	1008 Dec 30 j 11:07	14°♂48'20	31.13200 AU
retrograde	1001 Mar 26 j 19:39	29°♂45'19		retrograde	1009 Apr 13 j 19:25	17°♂18'23	
opposition	1001 Jun 14 j 22:51	28°♂22'20	1°02'02	opposition	1009 Jul 03 j 06:46	15°♂54'48	0°29'55
min. Earth dist.	1001 Jun 15 j 00:10	28°♂22'15	29.19909 AU	min. Earth dist.	1009 Jul 02 j 23:09	15°♂55'19	29.12889 AU

direct	1009 Sep 21 j 01:28	14°☾31'34		min. Earth dist.	1016 Jul 18 j 15:08	1°☾22'28	29.06401 AU
					1016 Sep 27 j 01:09	30°☾☾	
conjunction	1010 Jan 01 j 14:25	16°☾59'36	0°26'01	direct	1016 Oct 06 j 08:09	29°☾58'33	
minimum elong	1010 Jan 01 j 14:25	16°☾59'36	0°26'02		1016 Oct 15 j 13:15	0°☾☾	
max. Earth dist.	1010 Jan 01 j 21:27	17°☾00'16	31.12559 AU				
retrograde	1010 Apr 16 j 06:42	19°☾30'26		conjunction	1017 Jan 16 j 12:21	2°☾26'25	0°-2'-48
opposition	1010 Jul 05 j 19:49	18°☾06'49	0°25'37	minimum elong	1017 Jan 16 j 12:21	2°☾26'25	0°02'50
min. Earth dist.	1010 Jul 05 j 12:32	18°☾07'19	29.12241 AU	behind sun begin	1017 Jan 16 j 05:57	2°☾25'50	
direct	1010 Sep 23 j 11:37	16°☾43'39		behind sun end	1017 Jan 16 j 18:44	2°☾26'59	
				max. Earth dist.	1017 Jan 17 j 00:25	2°☾27'32	31.05829 AU
conjunction	1011 Jan 04 j 00:17	19°☾11'40	0°21'59	retrograde	1017 May 02 j 00:16	4°☾58'19	
minimum elong	1011 Jan 04 j 00:17	19°☾11'40	0°21'59	opposition	1017 Jul 21 j 16:13	3°☾34'12	0°-5'-10
max. Earth dist.	1011 Jan 04 j 08:29	19°☾12'27	31.11891 AU	min. Earth dist.	1017 Jul 21 j 04:18	3°☾35'00	29.05296 AU
retrograde	1011 Apr 18 j 18:49	21°☾42'41		direct	1017 Oct 08 j 20:14	2°☾11'05	
opposition	1011 Jul 08 j 08:57	20°☾19'03	0°21'17				
min. Earth dist.	1011 Jul 08 j 00:05	20°☾19'39	29.11527 AU	conjunction	1018 Jan 18 j 22:31	4°☾38'55	0°-6'-56
direct	1011 Sep 25 j 22:41	18°☾55'55		minimum elong	1018 Jan 18 j 22:32	4°☾38'55	0°06'57
				behind sun begin	1018 Jan 18 j 16:34	4°☾38'23	
conjunction	1012 Jan 06 j 10:02	21°☾23'56	0°17'55	behind sun end	1018 Jan 19 j 04:29	4°☾39'27	
minimum elong	1012 Jan 06 j 10:02	21°☾23'56	0°17'56	max. Earth dist.	1018 Jan 19 j 11:20	4°☾40'07	31.04773 AU
max. Earth dist.	1012 Jan 06 j 18:07	21°☾24'41	31.11126 AU	retrograde	1018 May 04 j 12:13	7°☾10'57	
retrograde	1012 Apr 20 j 07:55	23°☾55'08		opposition	1018 Jul 24 j 05:03	5°☾46'46	0°-9'-36
opposition	1012 Jul 09 j 22:19	22°☾31'27	0°16'55	min. Earth dist.	1018 Jul 23 j 15:12	5°☾47'43	29.04289 AU
min. Earth dist.	1012 Jul 09 j 13:37	22°☾32'02	29.10715 AU	direct	1018 Oct 11 j 08:02	4°☾23'40	
direct	1012 Sep 27 j 08:48	21°☾08'21					
				conjunction	1019 Jan 21 j 08:43	6°☾51'29	0°-11'-3
conjunction	1013 Jan 07 j 20:09	23°☾36'21	0°13'49	minimum elong	1019 Jan 21 j 08:42	6°☾51'29	0°11'04
minimum elong	1013 Jan 07 j 20:09	23°☾36'21	0°13'49	behind sun begin	1019 Jan 21 j 03:52	6°☾51'03	
behind sun begin	1013 Jan 07 j 16:41	23°☾36'02		behind sun end	1019 Jan 21 j 13:33	6°☾51'56	
behind sun end	1013 Jan 07 j 23:38	23°☾36'40		max. Earth dist.	1019 Jan 21 j 22:11	6°☾52'45	31.03810 AU
max. Earth dist.	1013 Jan 08 j 05:45	23°☾37'15	31.10251 AU	retrograde	1019 May 06 j 23:41	9°☾23'41	
retrograde	1013 Apr 22 j 20:28	26°☾07'42		opposition	1019 Jul 26 j 18:12	7°☾59'27	0°-14'-1
opposition	1013 Jul 12 j 11:29	24°☾43'58	0°12'31	min. Earth dist.	1019 Jul 26 j 04:24	8°☾00'23	29.03389 AU
min. Earth dist.	1013 Jul 12 j 01:51	24°☾44'37	29.09768 AU	direct	1019 Oct 13 j 18:43	6°☾36'22	
direct	1013 Sep 29 j 21:02	23°☾20'53					
				conjunction	1020 Jan 23 j 18:54	9°☾04'11	0°-15'-10
conjunction	1014 Jan 10 j 06:10	25°☾48'52	0°09'43	minimum elong	1020 Jan 23 j 18:54	9°☾04'11	0°15'10
minimum elong	1014 Jan 10 j 06:10	25°☾48'52	0°09'43	behind sun begin	1020 Jan 23 j 16:34	9°☾03'58	
behind sun begin	1014 Jan 10 j 00:52	25°☾48'23		behind sun end	1020 Jan 23 j 21:14	9°☾04'24	
behind sun end	1014 Jan 10 j 11:27	25°☾49'20		max. Earth dist.	1020 Jan 24 j 09:56	9°☾05'36	31.02965 AU
max. Earth dist.	1014 Jan 10 j 15:09	25°☾49'42	31.09246 AU	retrograde	1020 May 08 j 12:04	11°☾36'33	
retrograde	1014 Apr 25 j 10:31	28°☾20'22		opposition	1020 Jul 28 j 07:14	10°☾12'15	0°-18'-25
opposition	1014 Jul 15 j 00:44	26°☾56'32	0°08'06	min. Earth dist.	1020 Jul 27 j 15:34	10°☾13'20	29.02584 AU
min. Earth dist.	1014 Jul 14 j 14:37	26°☾57'13	29.08706 AU	direct	1020 Oct 15 j 06:04	8°☾49'12	
direct	1014 Oct 02 j 07:17	25°☾33'27					
				conjunction	1021 Jan 25 j 05:14	11°☾17'02	0°-19'-16
conjunction	1015 Jan 12 j 16:16	28°☾01'24	0°05'36	minimum elong	1021 Jan 25 j 05:13	11°☾17'02	0°19'17
minimum elong	1015 Jan 12 j 16:16	28°☾01'24	0°05'35	max. Earth dist.	1021 Jan 25 j 20:18	11°☾18'27	31.02199 AU
behind sun begin	1015 Jan 12 j 10:06	28°☾00'50		retrograde	1021 May 11 j 00:42	13°☾49'34	
behind sun end	1015 Jan 12 j 22:26	28°☾01'57		opposition	1021 Jul 30 j 20:17	12°☾25'15	0°-22'-47
max. Earth dist.	1015 Jan 13 j 02:50	28°☾02'23	31.08128 AU	min. Earth dist.	1021 Jul 30 j 04:43	12°☾26'19	29.01860 AU
	1015 Mar 13 j 12:59	0°☾☾		direct	1021 Oct 17 j 15:50	11°☾02'14	
retrograde	1015 Apr 27 j 21:58	0°☾☾33'02					
	1015 Jun 14 j 00:51	30°☾☾☾		conjunction	1022 Jan 27 j 15:49	13°☾30'04	0°-23'-20
opposition	1015 Jul 17 j 13:53	29°☾09'07	0°03'40	minimum elong	1022 Jan 27 j 15:48	13°☾30'04	0°23'21
min. Earth dist.	1015 Jul 17 j 03:23	29°☾09'49	29.07550 AU	max. Earth dist.	1022 Jan 28 j 08:38	13°☾31'40	31.01489 AU
direct	1015 Oct 04 j 19:45	27°☾46'01			1022 Mar 10 j 21:08	15°☾☾	
	1016 Jan 08 j 23:45	0°☾☾		retrograde	1022 May 13 j 12:48	16°☾02'47	
					1022 Jul 20 j 01:58	15°☾☾☾	
conjunction	1016 Jan 15 j 02:19	0°☾☾13'55	0°01'26	opposition	1022 Aug 02 j 09:17	14°☾38'25	0°-27'-8
minimum elong	1016 Jan 15 j 02:17	0°☾☾13'55	0°01'26	min. Earth dist.	1022 Aug 01 j 16:39	14°☾39'34	29.01153 AU
behind sun begin	1016 Jan 14 j 19:53	0°☾☾13'20		direct	1022 Oct 20 j 03:06	13°☾15'27	
behind sun end	1016 Jan 15 j 08:41	0°☾☾14'29			1023 Jan 10 j 19:42	15°☾☾	
max. Earth dist.	1016 Jan 15 j 12:52	0°☾☾14'54	31.06971 AU				
retrograde	1016 Apr 29 j 12:09	2°☾☾45'41		conjunction	1023 Jan 30 j 02:17	15°☾☾43'18	0°-27'-23
desc. node	1016 May 17 j 10:44	2°☾☾40'30		minimum elong	1023 Jan 30 j 02:17	15°☾☾43'18	0°27'25
opposition	1016 Jul 19 j 03:02	1°☾☾21'39	0°00'-44	max. Earth dist.	1023 Jan 30 j 18:38	15°☾☾44'51	31.00779 AU

retrograde	1023 May 16 j 03:03	18° \approx 16'11		retrograde	1031 Jun 03 j 09:47	6° \times 05'15	
opposition	1023 Aug 04 j 22:24	16° \approx 51'48	0°-31'-27	min. Earth dist.	1031 Aug 22 j 09:36	4° \times 41'39	28.92390 AU
min. Earth dist.	1023 Aug 04 j 05:24	16° \approx 52'57	29.00436 AU	opposition	1031 Aug 23 j 06:01	4° \times 40'14	-1°-3'-45
direct	1023 Oct 22 j 12:23	15° \approx 28'50		direct	1031 Nov 09 j 10:41	3° \times 17'06	
conjunction	1024 Feb 01 j 13:11	17° \approx 56'44	0°-31'-24	conjunction	1032 Feb 19 j 06:09	5° \times 44'59	-1°-1'-19
minimum elong	1024 Feb 01 j 13:11	17° \approx 56'44	0°31'24	minimum elong	1032 Feb 19 j 06:09	5° \times 44'59	1°01'20
max. Earth dist.	1024 Feb 02 j 06:57	17° \approx 58'24	31.00026 AU	max. Earth dist.	1032 Feb 20 j 02:47	5° \times 46'56	30.91930 AU
retrograde	1024 May 17 j 15:39	20° \approx 29'46		retrograde	1032 Jun 04 j 23:53	8° \times 18'53	
opposition	1024 Aug 06 j 11:32	19° \approx 05'20	0°-35'-43	opposition	1032 Aug 24 j 18:46	6° \times 53'49	-1°-7'-25
min. Earth dist.	1024 Aug 05 j 18:22	19° \approx 06'30	28.99646 AU	min. Earth dist.	1032 Aug 23 j 21:55	6° \times 55'15	28.91618 AU
direct	1024 Oct 24 j 00:34	17° \approx 42'24		direct	1032 Nov 10 j 19:46	5° \times 30'40	
conjunction	1025 Feb 03 j 00:03	20° \approx 10'18	0°-35'-22	conjunction	1033 Feb 20 j 17:38	7° \times 58'37	-1°-4'-43
minimum elong	1025 Feb 03 j 00:03	20° \approx 10'18	0°35'23	minimum elong	1033 Feb 20 j 17:38	7° \times 58'37	1°04'44
max. Earth dist.	1025 Feb 03 j 17:22	20° \approx 11'56	30.99191 AU	max. Earth dist.	1033 Feb 21 j 15:51	8° \times 00'43	30.91208 AU
retrograde	1025 May 20 j 07:04	22° \approx 43'27		retrograde	1033 Jun 07 j 12:13	10° \times 32'38	
min. Earth dist.	1025 Aug 08 j 06:42	21° \approx 20'12	28.98756 AU	min. Earth dist.	1033 Aug 26 j 10:14	9° \times 09'01	28.90953 AU
opposition	1025 Aug 09 j 00:39	21° \approx 18'58	0°-39'-55	opposition	1033 Aug 27 j 07:28	9° \times 07'33	-1°-10'-59
direct	1025 Oct 26 j 12:28	19° \approx 56'01		direct	1033 Nov 13 j 07:31	7° \times 44'26	
conjunction	1026 Feb 05 j 11:13	22° \approx 23'56	0°-39'-16	conjunction	1034 Feb 23 j 05:10	10° \times 12'25	-1°-8'00
minimum elong	1026 Feb 05 j 11:13	22° \approx 23'56	0°39'16	minimum elong	1034 Feb 23 j 05:10	10° \times 12'25	1°08'01
max. Earth dist.	1026 Feb 06 j 05:13	22° \approx 25'38	30.98223 AU	max. Earth dist.	1034 Feb 24 j 03:06	10° \times 14'30	30.90599 AU
retrograde	1026 May 22 j 19:24	24° \approx 57'13		retrograde	1034 Jun 10 j 03:33	12° \times 46'34	
opposition	1026 Aug 11 j 13:40	23° \approx 32'38	0°-44'-5	opposition	1034 Aug 29 j 20:01	11° \times 21'29	-1°-14'-28
min. Earth dist.	1026 Aug 10 j 20:23	23° \approx 33'49	28.97730 AU	min. Earth dist.	1034 Aug 28 j 21:55	11° \times 23'00	28.90391 AU
direct	1026 Oct 29 j 00:16	22° \approx 09'40		direct	1034 Nov 15 j 18:31	9° \times 58'22	
conjunction	1027 Feb 07 j 22:20	24° \approx 37'34	0°-43'-8	conjunction	1035 Feb 25 j 16:52	12° \times 26'27	-1°-11'-12
minimum elong	1027 Feb 07 j 22:20	24° \approx 37'34	0°43'09	minimum elong	1035 Feb 25 j 16:51	12° \times 26'27	1°11'14
max. Earth dist.	1027 Feb 08 j 16:30	24° \approx 39'17	30.97152 AU	max. Earth dist.	1035 Feb 26 j 15:45	12° \times 28'37	30.90058 AU
retrograde	1027 May 25 j 09:03	27° \approx 10'56		retrograde	1035 Jun 12 j 16:14	15° \times 00'44	
min. Earth dist.	1027 Aug 13 j 08:04	25° \approx 47'33	28.96615 AU	min. Earth dist.	1035 Aug 31 j 11:14	13° \times 37'08	28.89877 AU
opposition	1027 Aug 14 j 02:39	25° \approx 46'16	0°-48'-10	opposition	1035 Sep 01 j 08:46	13° \times 35'39	-1°-17'-49
direct	1027 Oct 31 j 12:53	24° \approx 23'15		direct	1035 Nov 18 j 05:20	12° \times 12'34	
conjunction	1028 Feb 10 j 09:18	26° \approx 51'08	0°-46'-55	conjunction	1036 Feb 28 j 04:38	14° \times 40'43	-1°-14'-17
minimum elong	1028 Feb 10 j 09:17	26° \approx 51'08	0°46'55	minimum elong	1036 Feb 28 j 04:37	14° \times 40'43	1°14'18
max. Earth dist.	1028 Feb 11 j 03:38	26° \approx 52'52	30.96001 AU	max. Earth dist.	1036 Feb 29 j 03:42	14° \times 42'54	30.89557 AU
retrograde	1028 May 26 j 21:37	29° \approx 24'36		retrograde	1036 Jun 14 j 07:25	17° \times 15'07	
opposition	1028 Aug 15 j 15:45	27° \approx 59'50	0°-52'-11	opposition	1036 Sep 02 j 21:25	15° \times 50'02	-1°-21'-4
min. Earth dist.	1028 Aug 14 j 21:45	28° \approx 01'04	28.95462 AU	min. Earth dist.	1036 Sep 01 j 22:51	15° \times 51'36	28.89371 AU
direct	1028 Nov 02 j 00:38	26° \approx 36'46		direct	1036 Nov 19 j 17:46	14° \times 26'59	
conjunction	1029 Feb 11 j 20:32	29° \approx 04'38	0°-50'-38	conjunction	1037 Mar 01 j 16:41	16° \times 55'11	-1°-17'-16
minimum elong	1029 Feb 11 j 20:32	29° \approx 04'38	0°50'40	minimum elong	1037 Mar 01 j 16:40	16° \times 55'11	1°17'17
max. Earth dist.	1029 Feb 12 j 16:03	29° \approx 06'29	30.94857 AU	max. Earth dist.	1037 Mar 02 j 15:29	16° \times 57'21	30.89014 AU
	1029 Mar 08 j 17:49	0° \times		retrograde	1037 Jun 16 j 21:39	19° \times 29'43	
retrograde	1029 May 29 j 10:15	1° \times 38'11		opposition	1037 Sep 05 j 10:03	18° \times 04'36	-1°-24'-11
min. Earth dist.	1029 Aug 17 j 08:57	0° \times 14'39	28.94341 AU	min. Earth dist.	1037 Sep 04 j 12:35	18° \times 06'05	28.88806 AU
opposition	1029 Aug 18 j 04:25	0° \times 13'18	0°-56'-7	direct	1037 Nov 22 j 05:32	16° \times 41'33	
	1029 Aug 26 j 06:32	30° \times					
direct	1029 Nov 04 j 13:02	28° \approx 50'12		conjunction	1038 Mar 04 j 04:58	19° \times 09'50	-1°-20'-8
	1030 Jan 09 j 05:49	0° \times		minimum elong	1038 Mar 04 j 04:58	19° \times 09'50	1°20'08
				max. Earth dist.	1038 Mar 05 j 04:16	19° \times 12'02	30.88405 AU
conjunction	1030 Feb 14 j 07:40	1° \times 18'03	0°-54'-17	retrograde	1038 Jun 19 j 11:21	21° \times 44'26	
minimum elong	1030 Feb 14 j 07:40	1° \times 18'03	0°54'17	opposition	1038 Sep 07 j 22:39	20° \times 19'18	-1°-27'-11
max. Earth dist.	1030 Feb 15 j 02:57	1° \times 19'53	30.93765 AU	min. Earth dist.	1038 Sep 07 j 00:16	20° \times 20'51	28.88145 AU
retrograde	1030 May 31 j 22:17	3° \times 51'43		direct	1038 Nov 24 j 18:31	18° \times 56'14	
opposition	1030 Aug 20 j 17:18	2° \times 26'45	0°-59'-59				
min. Earth dist.	1030 Aug 19 j 22:03	2° \times 28'05	28.93310 AU	conjunction	1039 Mar 06 j 17:02	21° \times 24'32	-1°-22'-52
direct	1030 Nov 06 j 23:10	1° \times 03'38		minimum elong	1039 Mar 06 j 17:02	21° \times 24'32	1°22'54
				max. Earth dist.	1039 Mar 07 j 15:25	21° \times 26'39	30.87690 AU
conjunction	1031 Feb 16 j 18:54	3° \times 31'29	0°-57'-51	retrograde	1039 Jun 21 j 23:42	23° \times 59'12	
minimum elong	1031 Feb 16 j 18:54	3° \times 31'29	0°57'52	opposition	1039 Sep 10 j 11:22	22° \times 34'00	-1°-30'-3
max. Earth dist.	1031 Feb 17 j 15:57	3° \times 33'29	30.92781 AU	min. Earth dist.	1039 Sep 09 j 13:54	22° \times 35'30	28.87398 AU

direct	1039 Nov 27 j 05:07	21° ✕ 10'54		direct	1047 Dec 15 j 01:21	9° Υ 06'48	
conjunction	1040 Mar 08 j 05:26	23° ✕ 39'13	-1°-25'-30	conjunction	1048 Mar 26 j 10:00	11° Υ 35'29	-1°-41'-30
minimum elong	1040 Mar 08 j 05:26	23° ✕ 39'13	1°25'30	minimum elong	1048 Mar 26 j 10:00	11° Υ 35'29	1°41'31
max. Earth dist.	1040 Mar 09 j 04:54	23° ✕ 41'26	30.86911 AU	max. Earth dist.	1048 Mar 27 j 09:37	11° Υ 37'43	30.83285 AU
retrograde	1040 Jun 23 j 11:45	26° ✕ 13'55		retrograde	1048 Jul 11 j 22:44	14° Υ 10'28	
opposition	1040 Sep 11 j 23:46	24° ✕ 48'39	-1°-32'-47	min. Earth dist.	1048 Sep 29 j 03:22	12° Υ 46'34	28.83384 AU
min. Earth dist.	1040 Sep 11 j 01:50	24° ✕ 50'11	28.86598 AU	opposition	1048 Sep 30 j 01:15	12° Υ 45'02	-1°-49'-17
direct	1040 Nov 28 j 17:25	23° ✕ 25'30		direct	1048 Dec 16 j 11:47	11° Υ 21'41	
conjunction	1041 Mar 10 j 17:44	25° ✕ 53'50	-1°-27'-59	conjunction	1049 Mar 28 j 23:18	13° Υ 50'28	-1°-42'-50
minimum elong	1041 Mar 10 j 17:44	25° ✕ 53'50	1°28'01	minimum elong	1049 Mar 28 j 23:18	13° Υ 50'28	1°42'52
max. Earth dist.	1041 Mar 11 j 16:09	25° ✕ 55'57	30.86111 AU	max. Earth dist.	1049 Mar 29 j 23:41	13° Υ 52'47	30.83232 AU
retrograde	1041 Jun 26 j 01:24	28° ✕ 28'34		retrograde	1049 Jul 14 j 12:23	16° Υ 25'29	
opposition	1041 Sep 14 j 12:12	27° ✕ 03'13	-1°-35'-23	opposition	1049 Oct 02 j 13:17	15° Υ 00'05	-1°-50'-38
min. Earth dist.	1041 Sep 13 j 14:28	27° ✕ 04'44	28.85820 AU	min. Earth dist.	1049 Oct 01 j 15:17	15° Υ 01'38	28.83308 AU
direct	1041 Dec 01 j 03:25	25° ✕ 40'00		direct	1049 Dec 19 j 00:21	13° Υ 36'45	
conjunction	1042 Mar 13 j 06:10	28° ✕ 08'21	-1°-30'-20	conjunction	1050 Mar 31 j 12:30	16° Υ 05'38	-1°-44'-1
minimum elong	1042 Mar 13 j 06:10	28° ✕ 08'21	1°30'21	minimum elong	1050 Mar 31 j 12:30	16° Υ 05'38	1°44'01
max. Earth dist.	1042 Mar 14 j 05:44	28° ✕ 10'34	30.85344 AU	max. Earth dist.	1050 Apr 01 j 11:17	16° Υ 07'47	30.83122 AU
	1042 May 07 j 05:44	0° Υ		retrograde	1050 Jul 17 j 02:08	18° Υ 40'40	
retrograde	1042 Jun 28 j 12:10	0° Υ 43'06		min. Earth dist.	1050 Oct 04 j 04:09	17° Υ 16'47	28.83165 AU
	1042 Aug 21 j 13:14	30° ✕		opposition	1050 Oct 05 j 01:22	17° Υ 15'18	-1°-51'-48
min. Earth dist.	1042 Sep 16 j 02:35	29° ✕ 19'13	28.85097 AU	direct	1050 Dec 21 j 10:39	15° Υ 51'57	
opposition	1042 Sep 17 j 00:23	29° ✕ 17'42	-1°-37'-50				
direct	1042 Dec 03 j 15:30	27° ✕ 54'25		conjunction	1051 Apr 03 j 02:00	18° Υ 20'54	-1°-45'-2
	1043 Mar 05 j 16:41	0° Υ		minimum elong	1051 Apr 03 j 02:00	18° Υ 20'54	1°45'03
conjunction	1043 Mar 15 j 18:33	0° Υ 22'47	-1°-32'-34	max. Earth dist.	1051 Apr 04 j 01:13	18° Υ 23'06	30.82925 AU
minimum elong	1043 Mar 15 j 18:33	0° Υ 22'47	1°32'35	retrograde	1051 Jul 19 j 13:31	20° Υ 55'57	
max. Earth dist.	1043 Mar 16 j 17:34	0° Υ 24'57	30.84681 AU	opposition	1051 Oct 07 j 13:25	19° Υ 30'35	-1°-52'-48
retrograde	1043 Jul 01 j 02:12	2° Υ 57'33		min. Earth dist.	1051 Oct 06 j 16:44	19° Υ 32'02	28.82918 AU
opposition	1043 Sep 19 j 12:38	1° Υ 32'07	-1°-40'-8	direct	1051 Dec 23 j 22:46	18° Υ 07'12	
min. Earth dist.	1043 Sep 18 j 14:08	1° Υ 33'41	28.84503 AU	conjunction	1052 Apr 04 j 15:22	20° Υ 36'13	-1°-45'-53
direct	1043 Dec 06 j 02:01	0° Υ 08'46		minimum elong	1052 Apr 04 j 15:22	20° Υ 36'13	1°45'54
conjunction	1044 Mar 17 j 07:00	2° Υ 37'11	-1°-34'-38	max. Earth dist.	1052 Apr 05 j 13:09	20° Υ 38'16	30.82645 AU
minimum elong	1044 Mar 17 j 07:00	2° Υ 37'11	1°34'39	retrograde	1052 Jul 21 j 03:30	23° Υ 11'14	
max. Earth dist.	1044 Mar 18 j 06:53	2° Υ 39'26	30.84141 AU	min. Earth dist.	1052 Oct 08 j 04:48	21° Υ 47'18	28.82601 AU
retrograde	1044 Jul 02 j 14:16	5° Υ 12'00		opposition	1052 Oct 09 j 01:22	21° Υ 45'51	-1°-53'-38
min. Earth dist.	1044 Sep 20 j 02:58	3° Υ 48'02	28.84038 AU	direct	1052 Dec 25 j 09:28	20° Υ 22'25	
opposition	1044 Sep 21 j 00:53	3° Υ 46'30	-1°-42'-17	conjunction	1053 Apr 07 j 04:58	22° Υ 51'29	-1°-46'-35
direct	1044 Dec 07 j 12:34	2° Υ 23'08		minimum elong	1053 Apr 07 j 04:58	22° Υ 51'29	1°46'36
conjunction	1045 Mar 19 j 19:40	4° Υ 51'36	-1°-36'-35	max. Earth dist.	1053 Apr 08 j 02:53	22° Υ 53'33	30.82294 AU
minimum elong	1045 Mar 19 j 19:40	4° Υ 51'36	1°36'36	retrograde	1053 Jul 23 j 15:06	25° Υ 26'28	
max. Earth dist.	1045 Mar 20 j 19:35	4° Υ 53'51	30.83752 AU	opposition	1053 Oct 11 j 13:08	24° Υ 01'05	-1°-54'-18
retrograde	1045 Jul 05 j 05:07	7° Υ 26'26		min. Earth dist.	1053 Oct 10 j 17:47	24° Υ 02'26	28.82239 AU
opposition	1045 Sep 23 j 12:51	6° Υ 00'56	-1°-44'-16	direct	1053 Dec 27 j 20:00	22° Υ 37'34	
min. Earth dist.	1045 Sep 22 j 13:54	6° Υ 02'33	28.83720 AU	conjunction	1054 Apr 09 j 18:28	25° Υ 06'42	-1°-47'-8
direct	1045 Dec 10 j 01:05	4° Υ 37'33		minimum elong	1054 Apr 09 j 18:28	25° Υ 06'42	1°47'08
conjunction	1046 Mar 22 j 08:20	7° Υ 06'05	-1°-38'-22	max. Earth dist.	1054 Apr 10 j 15:48	25° Υ 08'42	30.81947 AU
minimum elong	1046 Mar 22 j 08:20	7° Υ 06'05	1°38'23	retrograde	1054 Jul 26 j 05:06	27° Υ 41'38	
max. Earth dist.	1046 Mar 23 j 08:10	7° Υ 08'20	30.83490 AU	min. Earth dist.	1054 Oct 13 j 04:55	26° Υ 17'37	28.81909 AU
retrograde	1046 Jul 07 j 18:51	9° Υ 40'58		opposition	1054 Oct 14 j 00:49	26° Υ 16'13	-1°-54'-47
min. Earth dist.	1046 Sep 25 j 03:01	8° Υ 17'01	28.83527 AU	direct	1054 Dec 30 j 09:02	24° Υ 52'38	
opposition	1046 Sep 26 j 01:04	8° Υ 15'28	-1°-46'-6	conjunction	1055 Apr 12 j 07:48	27° Υ 21'49	-1°-47'-30
direct	1046 Dec 12 j 12:31	6° Υ 52'06		minimum elong	1055 Apr 12 j 07:48	27° Υ 21'49	1°47'31
conjunction	1047 Mar 24 j 21:04	9° Υ 20'42	-1°-40'-1	max. Earth dist.	1055 Apr 13 j 04:47	27° Υ 23'48	30.81639 AU
minimum elong	1047 Mar 24 j 21:04	9° Υ 20'42	1°40'02	retrograde	1055 Jul 28 j 17:45	29° Υ 56'43	
max. Earth dist.	1047 Mar 25 j 21:35	9° Υ 23'01	30.83355 AU	opposition	1055 Oct 16 j 12:36	28° Υ 31'17	-1°-55'-5
retrograde	1047 Jul 10 j 08:56	11° Υ 55'37		min. Earth dist.	1055 Oct 15 j 17:56	28° Υ 32'36	28.81649 AU
opposition	1047 Sep 28 j 13:08	10° Υ 30'10	-1°-47'-47	direct	1056 Jan 01 j 20:44	27° Υ 07'38	
min. Earth dist.	1047 Sep 27 j 14:07	10° Υ 31'46	28.83430 AU	conjunction	1056 Apr 13 j 21:27	29° Υ 36'53	-1°-47'-43

minimum elong	1056 Apr 13 j 21:27	29° Υ 36'53	1°47'43	direct	1064 Jan 19 j 18:57	15° C 08'35	
max. Earth dist.	1056 Apr 14 j 18:38	29° Υ 38'53	30.81435 AU				
	1056 Apr 24 j 04:00	0° C		conjunction	1064 May 02 j 12:43	17° C 38'29	-1°-43'-27
retrograde	1056 Jul 30 j 07:32	2° C 11'43		minimum elong	1064 May 02 j 12:43	17° C 38'29	1°43'28
opposition	1056 Oct 18 j 00:00	0° C 46'17	-1°-55'-14	max. Earth dist.	1064 May 03 j 04:59	17° C 40'01	30.82887 AU
min. Earth dist.	1056 Oct 17 j 04:35	0° C 47'39	28.81498 AU	retrograde	1064 Aug 17 j 14:49	20° C 12'49	
	1056 Nov 15 j 22:22	30° R Υ		opposition	1064 Nov 04 j 19:18	18° C 47'42	-1°-49'-57
direct	1057 Jan 03 j 09:42	29° Υ 22'35		min. Earth dist.	1064 Nov 04 j 05:29	18° C 48'41	28.83041 AU
	1057 Feb 19 j 14:41	0° C		direct	1065 Jan 21 j 06:02	17° C 23'46	
conjunction	1057 Apr 16 j 11:01	1° C 51'55	-1°-47'-45	conjunction	1065 May 05 j 03:03	19° C 53'44	-1°-42'-11
minimum elong	1057 Apr 16 j 11:02	1° C 51'55	1°47'47	minimum elong	1065 May 05 j 03:03	19° C 53'44	1°42'13
max. Earth dist.	1057 Apr 17 j 07:11	1° C 53'48	30.81343 AU	max. Earth dist.	1065 May 05 j 18:39	19° C 55'11	30.82964 AU
retrograde	1057 Aug 01 j 21:25	4° C 26'41		retrograde	1065 Aug 20 j 04:10	22° C 27'56	
opposition	1057 Oct 20 j 11:36	3° C 01'16	-1°-55'-11	opposition	1065 Nov 07 j 06:26	21° C 02'49	-1°-48'-32
min. Earth dist.	1057 Oct 19 j 17:16	3° C 02'33	28.81479 AU	min. Earth dist.	1065 Nov 06 j 16:26	21° C 03'49	28.83081 AU
direct	1058 Jan 05 j 20:53	1° C 37'32		direct	1066 Jan 23 j 19:13	19° C 38'48	
conjunction	1058 Apr 19 j 00:42	4° C 06'56	-1°-47'-38	conjunction	1066 May 07 j 17:04	22° C 08'49	-1°-40'-47
minimum elong	1058 Apr 19 j 00:42	4° C 06'56	1°47'39	minimum elong	1066 May 07 j 17:04	22° C 08'49	1°40'48
max. Earth dist.	1058 Apr 19 j 21:39	4° C 08'54	30.81391 AU	max. Earth dist.	1066 May 08 j 07:13	22° C 10'08	30.82991 AU
retrograde	1058 Aug 04 j 11:22	6° C 41'39		retrograde	1066 Aug 22 j 17:03	24° C 42'53	
opposition	1058 Oct 22 j 23:01	5° C 16'16	-1°-54'-58	opposition	1066 Nov 09 j 17:37	23° C 17'46	-1°-46'-56
min. Earth dist.	1058 Oct 22 j 04:20	5° C 17'35	28.81586 AU	min. Earth dist.	1066 Nov 09 j 05:08	23° C 18'39	28.83114 AU
direct	1059 Jan 08 j 10:23	3° C 52'32		direct	1067 Jan 26 j 07:01	21° C 53'41	
conjunction	1059 Apr 21 j 14:20	6° C 22'00	-1°-47'-21	conjunction	1067 May 10 j 07:18	24° C 23'44	-1°-39'-13
minimum elong	1059 Apr 21 j 14:20	6° C 22'00	1°47'22	minimum elong	1067 May 10 j 07:18	24° C 23'44	1°39'14
max. Earth dist.	1059 Apr 22 j 09:54	6° C 23'50	30.81570 AU	max. Earth dist.	1067 May 10 j 21:44	24° C 25'05	30.83047 AU
retrograde	1059 Aug 07 j 00:26	8° C 56'41		retrograde	1067 Aug 25 j 06:07	26° C 57'40	
opposition	1059 Oct 25 j 10:29	7° C 31'20	-1°-54'-34	opposition	1067 Nov 12 j 04:31	25° C 32'34	-1°-45'-11
min. Earth dist.	1059 Oct 24 j 16:27	7° C 32'37	28.81827 AU	min. Earth dist.	1067 Nov 11 j 16:05	25° C 33'27	28.83187 AU
direct	1060 Jan 10 j 21:01	6° C 07'35		direct	1068 Jan 28 j 20:59	24° C 08'23	
conjunction	1060 Apr 23 j 04:15	8° C 37'09	-1°-46'-54	conjunction	1068 May 11 j 21:22	26° C 38'30	-1°-37'-31
minimum elong	1060 Apr 23 j 04:15	8° C 37'09	1°46'55	minimum elong	1068 May 11 j 21:22	26° C 38'30	1°37'31
max. Earth dist.	1060 Apr 24 j 00:28	8° C 39'03	30.81853 AU	max. Earth dist.	1068 May 12 j 10:06	26° C 39'42	30.83165 AU
retrograde	1060 Aug 08 j 12:28	11° C 11'47		retrograde	1068 Aug 26 j 18:59	29° C 12'18	
opposition	1060 Oct 26 j 21:53	9° C 46'30	-1°-54'00	opposition	1068 Nov 13 j 15:29	27° C 47'13	-1°-43'-17
min. Earth dist.	1060 Oct 26 j 04:25	9° C 47'44	28.82132 AU	min. Earth dist.	1068 Nov 13 j 03:54	27° C 48'02	28.83358 AU
direct	1061 Jan 12 j 09:10	8° C 22'45		direct	1069 Jan 30 j 08:14	26° C 22'58	
conjunction	1061 Apr 25 j 18:13	10° C 52'24	-1°-46'-17	conjunction	1069 May 14 j 11:34	28° C 53'09	-1°-35'-39
minimum elong	1061 Apr 25 j 18:13	10° C 52'24	1°46'17	minimum elong	1069 May 14 j 11:35	28° C 53'09	1°35'40
max. Earth dist.	1061 Apr 26 j 12:47	10° C 54'09	30.82184 AU	max. Earth dist.	1069 May 15 j 00:50	28° C 54'23	30.83388 AU
retrograde	1061 Aug 11 j 02:44	13° C 26'59			1069 Jun 14 j 06:17	0° II	
opposition	1061 Oct 29 j 09:09	12° C 01'46	-1°-53'-14	retrograde	1069 Aug 29 j 06:56	1° II 26'49	
min. Earth dist.	1061 Oct 28 j 16:00	12° C 02'59	28.82463 AU	opposition	1069 Nov 16 j 02:15	0° II 01'46	-1°-41'-13
direct	1062 Jan 14 j 19:37	10° C 37'59		min. Earth dist.	1069 Nov 15 j 15:11	0° II 02'33	28.83639 AU
conjunction	1062 Apr 28 j 08:22	13° C 07'45	-1°-45'-30		1069 Nov 17 j 03:11	30° R C	
minimum elong	1062 Apr 28 j 08:22	13° C 07'45	1°45'30	direct	1070 Feb 01 j 20:56	28° C 37'29	
max. Earth dist.	1062 Apr 29 j 02:53	13° C 09'29	30.82491 AU		1070 Apr 15 j 18:50	0° II	
	1062 Jun 23 j 00:40	15° C		conjunction	1070 May 17 j 01:35	1° II 07'44	-1°-33'-39
retrograde	1062 Aug 13 j 13:57	15° C 42'16		minimum elong	1070 May 17 j 01:35	1° II 07'44	1°33'40
	1062 Oct 05 j 08:12	15° R C		max. Earth dist.	1070 May 17 j 13:15	1° II 08'50	30.83755 AU
opposition	1062 Oct 31 j 20:37	14° C 17'06	-1°-52'-19	retrograde	1070 Aug 31 j 20:50	3° II 41'17	
min. Earth dist.	1062 Oct 31 j 04:57	14° C 18'13	28.82741 AU	opposition	1070 Nov 18 j 13:04	2° II 16'17	-1°-39'00
direct	1063 Jan 17 j 06:18	12° C 53'18		min. Earth dist.	1070 Nov 18 j 01:58	2° II 17'05	28.84084 AU
	1063 Apr 20 j 14:46	15° C		direct	1071 Feb 04 j 07:45	0° II 51'58	
conjunction	1063 Apr 30 j 22:26	15° C 23'08	-1°-44'-33	conjunction	1071 May 19 j 15:38	3° II 22'18	-1°-31'-31
minimum elong	1063 Apr 30 j 22:26	15° C 23'08	1°44'34	minimum elong	1071 May 19 j 15:39	3° II 22'18	1°31'31
max. Earth dist.	1063 May 01 j 15:41	15° C 24'45	30.82742 AU	max. Earth dist.	1071 May 20 j 03:40	3° II 23'26	30.84272 AU
retrograde	1063 Aug 16 j 03:02	17° C 57'34		retrograde	1071 Sep 03 j 07:21	5° II 55'45	
opposition	1063 Nov 03 j 07:59	16° C 32'27	-1°-51'-13	opposition	1071 Nov 20 j 23:55	4° II 30'50	-1°-36'-38
min. Earth dist.	1063 Nov 02 j 16:18	16° C 33'33	28.82939 AU	min. Earth dist.	1071 Nov 20 j 14:01	4° II 31'32	28.84667 AU

direct	1072 Feb 06 j 18:32	3°II06'31		minimum elong	1080 Jun 09 j 00:21	23°II34'54	1°06'26
				max. Earth dist.	1080 Jun 09 j 03:36	23°II35'12	30.90082 AU
conjunction	1072 May 21 j 05:49	5°II36'56	-1°-29'-13	retrograde	1080 Sep 22 j 21:38	26°II07'01	
minimum elong	1072 May 21 j 05:50	5°II36'56	1°29'15	opposition	1080 Dec 09 j 23:37	24°II42'42	-1°-9'-14
max. Earth dist.	1072 May 21 j 16:41	5°II37'57	30.84938 AU	min. Earth dist.	1080 Dec 09 j 21:38	24°II42'51	28.90403 AU
retrograde	1072 Sep 04 j 19:52	8°II10'16		direct	1081 Feb 26 j 07:41	23°II17'59	
opposition	1072 Nov 22 j 10:31	6°II45'28	-1°-34'-7				
min. Earth dist.	1072 Nov 22 j 00:25	6°II46'11	28.85378 AU	conjunction	1081 Jun 11 j 14:27	25°II49'00	-1°-3'-5
direct	1073 Feb 08 j 06:22	5°II21'07		minimum elong	1081 Jun 11 j 14:27	25°II49'01	1°03'06
				max. Earth dist.	1081 Jun 11 j 16:17	25°II49'11	30.90675 AU
conjunction	1073 May 23 j 20:07	7°II51'40	-1°-26'-48	retrograde	1081 Sep 25 j 09:54	28°II20'56	
minimum elong	1073 May 23 j 20:07	7°II51'40	1°26'49	opposition	1081 Dec 12 j 09:59	26°II56'40	-1°-5'-37
max. Earth dist.	1073 May 24 j 06:26	7°II52'38	30.85689 AU	min. Earth dist.	1081 Dec 12 j 07:45	26°II56'49	28.91040 AU
retrograde	1073 Sep 07 j 07:25	10°II24'54		direct	1082 Feb 28 j 19:43	25°II31'53	
opposition	1073 Nov 24 j 21:21	9°II00'12	-1°-31'-27				
min. Earth dist.	1073 Nov 24 j 13:00	9°II00'48	28.86157 AU	conjunction	1082 Jun 14 j 04:21	28°II02'56	0°-59'-39
direct	1074 Feb 10 j 16:09	7°II35'52		minimum elong	1082 Jun 14 j 04:21	28°II02'56	0°59'41
				max. Earth dist.	1082 Jun 14 j 05:55	28°II03'05	30.91365 AU
conjunction	1074 May 26 j 10:17	10°II06'31	-1°-24'-15		1082 Aug 12 j 18:20	0°☾	
minimum elong	1074 May 26 j 10:18	10°II06'31	1°24'16	retrograde	1082 Sep 27 j 20:34	0°☾34'41	
max. Earth dist.	1074 May 26 j 19:53	10°II07'24	30.86486 AU		1082 Nov 13 j 17:10	30°RII	
retrograde	1074 Sep 09 j 20:07	12°II39'39		opposition	1082 Dec 14 j 20:28	29°II10'28	-1°-1'-54
opposition	1074 Nov 27 j 08:02	11°II15'03	-1°-28'-39	min. Earth dist.	1082 Dec 14 j 19:45	29°II10'31	28.91798 AU
min. Earth dist.	1074 Nov 26 j 23:34	11°II15'39	28.86936 AU	direct	1083 Mar 03 j 05:45	27°II45'38	
direct	1075 Feb 13 j 04:30	9°II50'42			1083 Jun 09 j 06:13	0°☾	
conjunction	1075 May 29 j 00:39	12°II21'27	-1°-21'-34	conjunction	1083 Jun 16 j 18:23	0°☾16'43	0°-56'-8
minimum elong	1075 May 29 j 00:39	12°II21'27	1°21'34	minimum elong	1083 Jun 16 j 18:23	0°☾16'43	0°56'09
max. Earth dist.	1075 May 29 j 08:33	12°II22'11	30.87242 AU	max. Earth dist.	1083 Jun 16 j 19:19	0°☾16'49	30.92202 AU
retrograde	1075 Sep 12 j 08:28	14°II54'28		retrograde	1083 Sep 30 j 07:44	2°☾48'18	
opposition	1075 Nov 29 j 18:48	13°II29'57	-1°-25'-43	opposition	1083 Dec 17 j 06:39	1°☾24'10	0°-58'-6
min. Earth dist.	1075 Nov 29 j 12:11	13°II30'25	28.87663 AU	min. Earth dist.	1083 Dec 17 j 05:31	1°☾24'15	28.92696 AU
direct	1076 Feb 15 j 16:08	12°II05'35			1084 Feb 27 j 08:02	30°RII	
				direct	1084 Mar 04 j 18:09	29°II59'18	
conjunction	1076 May 30 j 15:12	14°II36'24	-1°-18'-45		1084 Mar 11 j 05:15	0°☾	
minimum elong	1076 May 30 j 15:12	14°II36'25	1°18'46				
max. Earth dist.	1076 May 30 j 22:43	14°II37'07	30.87931 AU	conjunction	1084 Jun 18 j 08:24	2°☾30'28	0°-52'-32
retrograde	1076 Sep 13 j 21:05	17°II09'16		minimum elong	1084 Jun 18 j 08:24	2°☾30'28	0°52'34
opposition	1076 Dec 01 j 05:29	15°II44'49	-1°-22'-39	max. Earth dist.	1084 Jun 18 j 08:08	2°☾30'26	30.93169 AU
min. Earth dist.	1076 Nov 30 j 23:22	15°II45'15	28.88291 AU	retrograde	1084 Oct 01 j 18:46	5°☾01'53	
direct	1077 Feb 17 j 06:14	14°II20'24		opposition	1084 Dec 18 j 17:05	3°☾37'51	0°-54'-12
				min. Earth dist.	1084 Dec 18 j 17:21	3°☾37'50	28.93727 AU
conjunction	1077 Jun 02 j 05:30	16°II51'17	-1°-15'-50	direct	1085 Mar 07 j 04:55	2°☾12'59	
minimum elong	1077 Jun 02 j 05:30	16°II51'17	1°15'50				
max. Earth dist.	1077 Jun 02 j 10:49	16°II51'47	30.88521 AU	conjunction	1085 Jun 20 j 22:23	4°☾44'13	0°-48'-51
retrograde	1077 Sep 16 j 09:54	19°II24'00		minimum elong	1085 Jun 20 j 22:24	4°☾44'13	0°48'52
opposition	1077 Dec 03 j 16:09	17°II59'35	-1°-19'-28	max. Earth dist.	1085 Jun 20 j 22:10	4°☾44'12	30.94257 AU
min. Earth dist.	1077 Dec 03 j 11:18	17°II59'55	28.88847 AU	retrograde	1085 Oct 04 j 06:24	7°☾15'30	
direct	1078 Feb 19 j 17:30	16°II35'05		opposition	1085 Dec 21 j 03:22	5°☾51'35	0°-50'-13
				min. Earth dist.	1085 Dec 21 j 03:50	5°☾51'33	28.94839 AU
conjunction	1078 Jun 04 j 19:54	19°II06'02	-1°-12'-48	direct	1086 Mar 09 j 17:49	4°☾26'44	
minimum elong	1078 Jun 04 j 19:55	19°II06'02	1°12'49				
max. Earth dist.	1078 Jun 05 j 01:15	19°II06'32	30.89052 AU	conjunction	1086 Jun 23 j 12:18	6°☾58'03	0°-45'-5
retrograde	1078 Sep 18 j 22:19	21°II38'32		minimum elong	1086 Jun 23 j 12:18	6°☾58'03	0°45'07
opposition	1078 Dec 06 j 02:44	20°II14'10	-1°-16'-10	max. Earth dist.	1086 Jun 23 j 10:15	6°☾57'52	30.95398 AU
min. Earth dist.	1078 Dec 05 j 22:50	20°II14'26	28.89350 AU	retrograde	1086 Oct 06 j 19:05	9°☾29'13	
direct	1079 Feb 22 j 07:21	18°II49'36		opposition	1086 Dec 23 j 13:42	8°☾05'25	0°-46'-10
				min. Earth dist.	1086 Dec 23 j 15:18	8°☾05'18	28.95991 AU
conjunction	1079 Jun 07 j 10:01	21°II20'34	-1°-9'-39	direct	1087 Mar 12 j 04:23	6°☾40'34	
minimum elong	1079 Jun 07 j 10:01	21°II20'34	1°09'40				
max. Earth dist.	1079 Jun 07 j 13:16	21°II20'52	30.89561 AU	conjunction	1087 Jun 26 j 02:24	9°☾11'59	0°-41'-16
retrograde	1079 Sep 21 j 11:33	23°II52'53		minimum elong	1087 Jun 26 j 02:24	9°☾11'59	0°41'16
opposition	1079 Dec 08 j 13:13	22°II28'32	-1°-12'-45	max. Earth dist.	1087 Jun 26 j 00:23	9°☾11'48	30.96530 AU
min. Earth dist.	1079 Dec 08 j 09:43	22°II28'47	28.89860 AU	retrograde	1087 Oct 09 j 07:18	11°☾43'01	
direct	1080 Feb 24 j 19:42	21°II03'54		opposition	1087 Dec 26 j 00:08	10°☾19'19	0°-42'-2
				min. Earth dist.	1087 Dec 26 j 02:54	10°☾19'07	28.97080 AU
conjunction	1080 Jun 09 j 00:21	23°II34'54	-1°-6'-25	direct	1088 Mar 13 j 18:07	8°☾54'29	

conjunction	1088 Jun 27 j 16:25	11° \mathring{S} 25'58	0°-37'-22	conjunction	1096 Jul 16 j 05:50	29° \mathring{S} 13'50	0°-4'-59
minimum elong	1088 Jun 27 j 16:26	11° \mathring{S} 25'58	0°37'24	minimum elong	1096 Jul 16 j 05:49	29° \mathring{S} 13'50	0°05'01
max. Earth dist.	1088 Jun 27 j 12:00	11° \mathring{S} 25'34	30.97580 AU	behind sun begin	1096 Jul 15 j 23:25	29° \mathring{S} 13'16	
retrograde	1088 Oct 10 j 20:27	13° \mathring{S} 56'51		behind sun end	1096 Jul 16 j 12:13	29° \mathring{S} 14'24	
opposition	1088 Dec 27 j 10:27	12° \mathring{S} 33'15	0°-37'-51	max. Earth dist.	1096 Jul 15 j 19:21	29° \mathring{S} 12'53	31.04032 AU
min. Earth dist.	1088 Dec 27 j 13:47	12° \mathring{S} 33'01	28.98081 AU		1096 Aug 06 j 06:46	0° \mathring{N}	
direct	1089 Mar 16 j 06:29	11° \mathring{S} 08'23		retrograde	1096 Oct 28 j 10:34	1° \mathring{N} 43'19	
				opposition	1097 Jan 13 j 20:38	0° \mathring{N} 20'09	0°-3'-4
conjunction	1089 Jun 30 j 06:33	13° \mathring{S} 39'57	0°-33'-26	min. Earth dist.	1097 Jan 14 j 06:30	0° \mathring{N} 19'28	29.04555 AU
minimum elong	1089 Jun 30 j 06:33	13° \mathring{S} 39'57	0°33'27		1097 Jan 25 j 21:11	30° \mathring{R} \mathring{S}	
max. Earth dist.	1089 Jun 30 j 01:50	13° \mathring{S} 39'31	30.98520 AU	direct	1097 Apr 03 j 06:00	28° \mathring{S} 54'58	
retrograde	1089 Oct 13 j 07:03	16° \mathring{S} 10'40			1097 Jun 07 j 09:28	0° \mathring{N}	
opposition	1089 Dec 29 j 20:59	14° \mathring{S} 47'09	0°-33'-37				
min. Earth dist.	1089 Dec 30 j 02:05	14° \mathring{S} 46'47	28.98962 AU	conjunction	1097 Jul 18 j 19:00	1° \mathring{N} 26'41	0°00'-48
direct	1090 Mar 18 j 18:45	13° \mathring{S} 22'16		minimum elong	1097 Jul 18 j 19:00	1° \mathring{N} 26'41	0°00'49
				behind sun begin	1097 Jul 18 j 12:25	1° \mathring{N} 26'06	
conjunction	1090 Jul 02 j 20:18	15° \mathring{S} 53'52	0°-29'-27	behind sun end	1097 Jul 19 j 01:35	1° \mathring{N} 27'16	
minimum elong	1090 Jul 02 j 20:18	15° \mathring{S} 53'52	0°29'29	max. Earth dist.	1097 Jul 18 j 06:49	1° \mathring{N} 25'34	31.05099 AU
max. Earth dist.	1090 Jul 02 j 13:43	15° \mathring{S} 53'15	30.99361 AU	asc. node	1097 Sep 27 j 01:58	3° \mathring{N} 36'40	
retrograde	1090 Oct 15 j 19:38	18° \mathring{S} 24'24		retrograde	1097 Oct 30 j 22:53	3° \mathring{N} 56'02	
opposition	1091 Jan 01 j 07:18	17° \mathring{S} 00'57	0°-29'-20	opposition	1098 Jan 16 j 06:50	2° \mathring{N} 32'57	0°01'20
min. Earth dist.	1091 Jan 01 j 12:30	17° \mathring{S} 00'35	28.99751 AU	min. Earth dist.	1098 Jan 16 j 16:39	2° \mathring{N} 32'16	29.05673 AU
direct	1091 Mar 21 j 07:13	15° \mathring{S} 36'01		direct	1098 Apr 05 j 18:02	1° \mathring{N} 07'46	
conjunction	1091 Jul 05 j 10:14	18° \mathring{S} 07'39	0°-25'-26	conjunction	1098 Jul 21 j 08:11	3° \mathring{N} 39'32	0°03'25
minimum elong	1091 Jul 05 j 10:14	18° \mathring{S} 07'39	0°25'26	minimum elong	1098 Jul 21 j 08:11	3° \mathring{N} 39'32	0°03'25
max. Earth dist.	1091 Jul 05 j 03:00	18° \mathring{S} 06'59	31.00106 AU	behind sun begin	1098 Jul 21 j 01:38	3° \mathring{N} 38'58	
retrograde	1091 Oct 18 j 06:11	20° \mathring{S} 38'00		behind sun end	1098 Jul 21 j 14:43	3° \mathring{N} 40'07	
opposition	1092 Jan 03 j 17:35	19° \mathring{S} 14'36	0°-25'-1	max. Earth dist.	1098 Jul 20 j 20:23	3° \mathring{N} 38'28	31.06243 AU
min. Earth dist.	1092 Jan 04 j 00:46	19° \mathring{S} 14'05	29.00470 AU	retrograde	1098 Nov 02 j 09:29	6° \mathring{N} 08'45	
direct	1092 Mar 22 j 17:31	17° \mathring{S} 49'37		opposition	1099 Jan 18 j 17:08	4° \mathring{N} 45'46	0°05'46
				min. Earth dist.	1099 Jan 19 j 04:29	4° \mathring{N} 44'59	29.06829 AU
conjunction	1092 Jul 07 j 00:02	20° \mathring{S} 21'15	0°-21'-22	direct	1099 Apr 08 j 06:05	3° \mathring{N} 20'37	
minimum elong	1092 Jul 07 j 00:02	20° \mathring{S} 21'15	0°21'24				
max. Earth dist.	1092 Jul 06 j 15:44	20° \mathring{S} 20'29	31.00814 AU	conjunction	1099 Jul 23 j 21:21	5° \mathring{N} 52'25	0°07'32
retrograde	1092 Oct 19 j 16:22	22° \mathring{S} 51'25		minimum elong	1099 Jul 23 j 21:22	5° \mathring{N} 52'25	0°07'33
opposition	1093 Jan 05 j 03:47	21° \mathring{S} 28'04	0°-20'-40	behind sun begin	1099 Jul 23 j 15:24	5° \mathring{N} 51'53	
min. Earth dist.	1093 Jan 05 j 10:50	21° \mathring{S} 27'34	29.01160 AU	behind sun end	1099 Jul 24 j 03:20	5° \mathring{N} 52'57	
direct	1093 Mar 25 j 06:31	20° \mathring{S} 03'01		max. Earth dist.	1099 Jul 23 j 07:56	5° \mathring{N} 51'11	31.07404 AU
				retrograde	1099 Nov 04 j 22:23	8° \mathring{N} 21'29	
conjunction	1093 Jul 09 j 13:32	22° \mathring{S} 34'40	0°-17'-18	opposition	1100 Jan 21 j 03:15	6° \mathring{N} 58'36	0°10'10
minimum elong	1093 Jul 09 j 13:32	22° \mathring{S} 34'40	0°17'18	min. Earth dist.	1100 Jan 21 j 14:33	6° \mathring{N} 57'49	29.07970 AU
max. Earth dist.	1093 Jul 09 j 04:04	22° \mathring{S} 33'48	31.01503 AU	direct	1100 Apr 09 j 19:00	5° \mathring{N} 33'27	
retrograde	1093 Oct 22 j 02:07	25° \mathring{S} 04'39					
opposition	1094 Jan 07 j 14:05	23° \mathring{S} 41'20	0°-16'-17	conjunction	1100 Jul 25 j 10:40	8° \mathring{N} 05'18	0°11'39
min. Earth dist.	1094 Jan 07 j 22:32	23° \mathring{S} 40'44	29.01877 AU	minimum elong	1100 Jul 25 j 10:40	8° \mathring{N} 05'18	0°11'38
direct	1094 Mar 27 j 17:09	22° \mathring{S} 16'14		behind sun begin	1100 Jul 25 j 06:03	8° \mathring{N} 04'53	
				behind sun end	1100 Jul 25 j 15:17	8° \mathring{N} 05'42	
conjunction	1094 Jul 12 j 03:04	24° \mathring{S} 47'53	0°-13'-12	max. Earth dist.	1100 Jul 24 j 20:49	8° \mathring{N} 04'01	31.08499 AU
minimum elong	1094 Jul 12 j 03:03	24° \mathring{S} 47'53	0°13'14	retrograde	1100 Nov 06 j 08:52	10° \mathring{N} 34'14	
behind sun begin	1094 Jul 11 j 23:20	24° \mathring{S} 47'33					
behind sun end	1094 Jul 12 j 06:46	24° \mathring{S} 48'12					
max. Earth dist.	1094 Jul 11 j 17:35	24° \mathring{S} 47'01	31.02252 AU				
retrograde	1094 Oct 24 j 12:27	27° \mathring{S} 17'41					
opposition	1095 Jan 10 j 00:11	25° \mathring{S} 54'24	0°-11'-54				
min. Earth dist.	1095 Jan 10 j 08:45	25° \mathring{S} 53'48	29.02659 AU				
direct	1095 Mar 30 j 05:28	24° \mathring{S} 29'15					
conjunction	1095 Jul 14 j 16:23	27° \mathring{S} 00'55	0°-9'-6				
minimum elong	1095 Jul 14 j 16:23	27° \mathring{S} 00'55	0°09'06				
behind sun begin	1095 Jul 14 j 10:49	27° \mathring{S} 00'25					
behind sun end	1095 Jul 14 j 21:57	27° \mathring{S} 01'24					
max. Earth dist.	1095 Jul 14 j 05:23	26° \mathring{S} 59'54	31.03083 AU				
retrograde	1095 Oct 26 j 23:47	29° \mathring{S} 30'34					
opposition	1096 Jan 12 j 10:26	28° \mathring{S} 07'20	0°-7'-29				
min. Earth dist.	1096 Jan 12 j 19:40	28° \mathring{S} 06'41	29.03554 AU				
direct	1096 Mar 31 j 16:11	26° \mathring{S} 42'08					

opposition	1100 Jan 21 j 03:15	6°♏58'36	0°10'10	direct	1107 Apr 26 j 06:00	21°♏00'10	
min. Earth dist.	1100 Jan 21 j 14:33	6°♏57'49	29.07970 AU	max. Earth dist.	1107 Aug 10 j 09:20	23°♏30'12	31.13888 AU
direct	1100 Apr 09 j 19:00	5°♏33'27		conjunction	1107 Aug 11 j 04:00	23°♏31'56	0°39'32
conjunction	1100 Jul 25 j 10:40	8°♏05'18	0°11'39	minimum elong	1107 Aug 11 j 04:00	23°♏31'56	0°39'32
minimum elong	1100 Jul 25 j 10:40	8°♏05'18	0°11'38	retrograde	1107 Nov 22 j 08:25	25°♏59'50	
behind sun begin	1100 Jul 25 j 06:03	8°♏04'53		opposition	1108 Feb 07 j 13:59	24°♏37'17	0°44'13
behind sun end	1100 Jul 25 j 15:17	8°♏05'42		min. Earth dist.	1108 Feb 08 j 07:31	24°♏36'03	29.14315 AU
max. Earth dist.	1100 Jul 24 j 20:49	8°♏04'01	31.08499 AU	direct	1108 Apr 27 j 18:16	23°♏11'54	
retrograde	1100 Nov 06 j 08:52	10°♏34'14		conjunction	1108 Aug 12 j 16:14	25°♏43'39	0°43'19
opposition	1101 Jan 22 j 13:43	9°♏11'26	0°14'34	minimum elong	1108 Aug 12 j 16:14	25°♏43'39	0°43'18
min. Earth dist.	1101 Jan 23 j 02:54	9°♏10'30	29.09029 AU	max. Earth dist.	1108 Aug 11 j 20:30	25°♏41'50	31.14707 AU
direct	1101 Apr 12 j 06:10	7°♏46'16		retrograde	1108 Nov 23 j 20:46	28°♏11'26	
conjunction	1101 Jul 27 j 23:40	10°♏18'08	0°15'44	opposition	1109 Feb 09 j 00:18	26°♏48'56	0°48'14
minimum elong	1101 Jul 27 j 23:40	10°♏18'08	0°15'44	min. Earth dist.	1109 Feb 09 j 17:04	26°♏47'46	29.15195 AU
behind sun begin	1101 Jul 27 j 23:04	10°♏18'04		direct	1109 Apr 30 j 07:31	25°♏23'34	
behind sun end	1101 Jul 28 j 00:16	10°♏18'11		max. Earth dist.	1109 Aug 14 j 09:00	27°♏53'33	31.15639 AU
max. Earth dist.	1101 Jul 27 j 08:45	10°♏16'45	31.09506 AU	conjunction	1109 Aug 15 j 04:20	27°♏55'20	0°47'02
retrograde	1101 Nov 08 j 19:14	12°♏46'55		minimum elong	1109 Aug 15 j 04:20	27°♏55'20	0°47'02
opposition	1102 Jan 25 j 00:04	11°♏24'11	0°18'56		1109 Oct 20 j 07:52	0°♐	
min. Earth dist.	1102 Jan 25 j 13:07	11°♏23'16	29.09975 AU	retrograde	1109 Nov 26 j 06:56	0°♐23'02	
direct	1102 Apr 14 j 19:11	9°♏59'00			1110 Jan 02 j 19:42	30°♐♏	
conjunction	1102 Jul 30 j 12:43	12°♏30'52	0°19'48	opposition	1110 Feb 11 j 10:46	29°♏00'35	0°52'10
minimum elong	1102 Jul 30 j 12:43	12°♏30'52	0°19'47	min. Earth dist.	1110 Feb 12 j 04:43	28°♏59'20	29.16193 AU
max. Earth dist.	1102 Jul 29 j 20:30	12°♏29'22	31.10389 AU	direct	1110 May 02 j 18:50	27°♏35'16	
retrograde	1102 Nov 11 j 05:11	14°♏59'30			1110 Aug 14 j 12:39	0°♐	
opposition	1103 Jan 27 j 10:24	13°♏36'49	0°23'16	conjunction	1110 Aug 17 j 16:25	0°♐07'02	0°50'41
min. Earth dist.	1103 Jan 28 j 01:03	13°♏35'47	29.10816 AU	minimum elong	1110 Aug 17 j 16:24	0°♐07'02	0°50'40
direct	1103 Apr 17 j 05:30	12°♏11'36		max. Earth dist.	1110 Aug 16 j 20:43	0°♐05'13	31.16688 AU
max. Earth dist.	1103 Aug 01 j 09:10	14°♏41'56	31.11176 AU	retrograde	1110 Nov 28 j 16:57	2°♐34'38	
conjunction	1103 Aug 02 j 01:43	14°♏43'27	0°23'50	opposition	1111 Feb 13 j 20:58	1°♐12'18	0°56'02
minimum elong	1103 Aug 02 j 01:43	14°♏43'27	0°23'51	min. Earth dist.	1111 Feb 14 j 14:21	1°♐11'06	29.17269 AU
	1103 Aug 09 j 12:17	15°♏			1111 Apr 06 j 13:45	30°♐♏	
retrograde	1103 Nov 13 j 15:00	17°♏11'56		direct	1111 May 05 j 07:23	29°♏47'02	
opposition	1104 Jan 29 j 20:44	15°♏49'17	0°27'34		1111 Jun 02 j 14:04	0°♐	
min. Earth dist.	1104 Jan 30 j 11:46	15°♏48'14	29.11546 AU	max. Earth dist.	1111 Aug 19 j 08:09	2°♐16'56	31.17773 AU
	1104 Mar 01 j 02:47	15°♐♏		conjunction	1111 Aug 20 j 04:32	2°♐18'49	0°54'16
direct	1104 Apr 18 j 17:51	14°♏24'02		minimum elong	1111 Aug 20 j 04:31	2°♐18'49	0°54'16
	1104 Jun 05 j 11:01	15°♏		retrograde	1111 Dec 01 j 03:11	4°♐46'21	
conjunction	1104 Aug 03 j 14:28	16°♏55'52	0°27'50	opposition	1112 Feb 16 j 07:30	3°♐24'06	0°59'49
minimum elong	1104 Aug 03 j 14:28	16°♏55'52	0°27'50	min. Earth dist.	1112 Feb 17 j 02:01	3°♐22'49	29.18365 AU
max. Earth dist.	1104 Aug 02 j 20:15	16°♏54'11	31.11865 AU	direct	1112 May 06 j 17:22	1°♐58'53	
retrograde	1104 Nov 15 j 01:28	19°♏24'12		conjunction	1112 Aug 21 j 16:34	4°♐30'41	0°57'46
opposition	1105 Jan 31 j 07:04	18°♏01'34	0°31'49	minimum elong	1112 Aug 21 j 16:33	4°♐30'41	0°57'45
min. Earth dist.	1105 Jan 31 j 22:54	18°♏00'27	29.12219 AU	max. Earth dist.	1112 Aug 20 j 20:19	4°♐28'48	31.18846 AU
direct	1105 Apr 21 j 04:48	16°♏36'16		retrograde	1112 Dec 02 j 12:51	6°♐58'09	
max. Earth dist.	1105 Aug 05 j 09:29	19°♏06'26	31.12518 AU	opposition	1113 Feb 17 j 18:05	5°♐35'59	1°03'31
conjunction	1105 Aug 06 j 03:13	19°♏08'05	0°31'47	min. Earth dist.	1113 Feb 18 j 12:45	5°♐34'41	29.19402 AU
minimum elong	1105 Aug 06 j 03:12	19°♏08'05	0°31'48	direct	1113 May 09 j 05:03	4°♐10'47	
retrograde	1105 Nov 17 j 11:09	21°♏36'15		max. Earth dist.	1113 Aug 23 j 06:51	6°♐40'34	31.19838 AU
opposition	1106 Feb 02 j 17:25	20°♏13'39	0°36'00	conjunction	1113 Aug 24 j 04:30	6°♐42'35	1°01'11
min. Earth dist.	1106 Feb 03 j 10:01	20°♏12'29	29.12867 AU	minimum elong	1113 Aug 24 j 04:30	6°♐42'35	1°01'11
direct	1106 Apr 23 j 18:06	18°♏48'19		retrograde	1113 Dec 04 j 23:03	9°♐09'59	
conjunction	1106 Aug 08 j 15:30	21°♏20'05	0°35'41	opposition	1114 Feb 20 j 04:41	7°♐47'52	1°07'06
minimum elong	1106 Aug 08 j 15:30	21°♏20'05	0°35'41	min. Earth dist.	1114 Feb 20 j 23:58	7°♐46'32	29.20362 AU
max. Earth dist.	1106 Aug 07 j 20:13	21°♏18'18	31.13178 AU	direct	1114 May 11 j 15:39	6°♐22'42	
retrograde	1106 Nov 19 j 22:35	23°♏48'08		conjunction	1114 Aug 26 j 16:27	8°♐54'29	1°04'30
opposition	1107 Feb 05 j 03:40	22°♏25'32	0°40'09	minimum elong	1114 Aug 26 j 16:27	8°♐54'29	1°04'29
min. Earth dist.	1107 Feb 05 j 20:03	22°♏24'23	29.13555 AU				

max. Earth dist.	1114 Aug 25 j 19:18	8° \mathring{M} 52'31	31.20730 AU	min. Earth dist.	1123 Mar 13 j 02:26	27° \mathring{M} 27'37	29.26228 AU
retrograde	1114 Dec 07 j 08:05	11° \mathring{M} 21'48		direct	1123 Jun 01 j 04:25	26° \mathring{M} 03'56	
opposition	1115 Feb 22 j 15:26	9° \mathring{M} 59'43	1°10'36				
min. Earth dist.	1115 Feb 23 j 11:35	9° \mathring{M} 58'20	29.21188 AU	conjunction	1123 Sep 15 j 22:26	28° \mathring{M} 35'15	1°29'36
direct	1115 May 14 j 04:04	8° \mathring{M} 34'34		minimum elong	1123 Sep 15 j 22:26	28° \mathring{M} 35'15	1°29'36
max. Earth dist.	1115 Aug 28 j 05:23	11° \mathring{M} 04'11	31.21493 AU	max. Earth dist.	1123 Sep 15 j 00:11	28° \mathring{M} 33'10	31.26541 AU
					1123 Oct 26 j 05:02	0° \mathring{A}	
conjunction	1115 Aug 29 j 04:16	11° \mathring{M} 06'19	1°07'44	retrograde	1123 Dec 27 j 02:28	1° \mathring{A} 01'52	
minimum elong	1115 Aug 29 j 04:16	11° \mathring{M} 06'19	1°07'44		1124 Mar 01 j 10:20	30° \mathring{R} \mathring{M}	
retrograde	1115 Dec 09 j 19:24	13° \mathring{M} 33'31		opposition	1124 Mar 13 j 16:27	29° \mathring{M} 39'58	1°36'52
opposition	1116 Feb 25 j 02:00	12° \mathring{M} 11'28	1°14'00	min. Earth dist.	1124 Mar 14 j 13:52	29° \mathring{M} 38'29	29.27046 AU
min. Earth dist.	1116 Feb 25 j 22:01	12° \mathring{M} 10'05	29.21899 AU	direct	1124 Jun 02 j 15:54	28° \mathring{M} 14'55	
direct	1116 May 15 j 15:05	10° \mathring{M} 46'18			1124 Aug 27 j 09:26	0° \mathring{A}	
				max. Earth dist.	1124 Sep 16 j 09:57	0° \mathring{A} 44'01	31.27355 AU
conjunction	1116 Aug 30 j 16:08	13° \mathring{M} 18'00	1°10'51				
minimum elong	1116 Aug 30 j 16:07	13° \mathring{M} 18'00	1°10'50	conjunction	1124 Sep 17 j 09:18	0° \mathring{A} 46'12	1°31'47
max. Earth dist.	1116 Aug 29 j 17:43	13° \mathring{M} 15'55	31.22139 AU	minimum elong	1124 Sep 17 j 09:17	0° \mathring{A} 46'12	1°31'46
retrograde	1116 Dec 11 j 05:02	15° \mathring{M} 45'07		retrograde	1124 Dec 28 j 14:01	3° \mathring{A} 12'50	
opposition	1117 Feb 26 j 12:51	14° \mathring{M} 23'04	1°17'17	opposition	1125 Mar 16 j 03:31	1° \mathring{A} 50'58	1°39'08
min. Earth dist.	1117 Feb 27 j 10:11	14° \mathring{M} 21'36	29.22500 AU	min. Earth dist.	1125 Mar 17 j 00:17	1° \mathring{A} 49'33	29.27844 AU
direct	1117 May 18 j 03:41	12° \mathring{M} 57'54		direct	1125 Jun 05 j 01:59	0° \mathring{A} 26'00	
max. Earth dist.	1117 Sep 01 j 04:01	15° \mathring{M} 27'20	31.22703 AU				
				conjunction	1125 Sep 19 j 20:08	2° \mathring{A} 57'15	1°33'50
conjunction	1117 Sep 02 j 03:31	15° \mathring{M} 29'31	1°13'52	minimum elong	1125 Sep 19 j 20:08	2° \mathring{A} 57'15	1°33'50
minimum elong	1117 Sep 02 j 03:31	15° \mathring{M} 29'31	1°13'53	max. Earth dist.	1125 Sep 18 j 21:40	2° \mathring{A} 55'10	31.28102 AU
retrograde	1117 Dec 13 j 16:55	17° \mathring{M} 56'31		retrograde	1125 Dec 30 j 23:50	5° \mathring{A} 23'54	
opposition	1118 Feb 28 j 23:30	16° \mathring{M} 34'28	1°20'27	opposition	1126 Mar 18 j 14:47	4° \mathring{A} 02'06	1°41'15
min. Earth dist.	1118 Mar 01 j 20:12	16° \mathring{M} 33'02	29.23035 AU	min. Earth dist.	1126 Mar 19 j 12:40	4° \mathring{A} 00'35	29.28545 AU
direct	1118 May 20 j 17:30	15° \mathring{M} 09'16		direct	1126 Jun 07 j 13:57	2° \mathring{A} 37'11	
				max. Earth dist.	1126 Sep 21 j 07:30	5° \mathring{A} 06'14	31.28743 AU
conjunction	1118 Sep 04 j 15:01	17° \mathring{M} 40'49	1°16'47				
minimum elong	1118 Sep 04 j 15:00	17° \mathring{M} 40'49	1°16'47	conjunction	1126 Sep 22 j 06:56	5° \mathring{A} 08'25	1°35'45
max. Earth dist.	1118 Sep 03 j 15:49	17° \mathring{M} 38'40	31.23209 AU	minimum elong	1126 Sep 22 j 06:56	5° \mathring{A} 08'25	1°35'44
retrograde	1118 Dec 16 j 02:32	20° \mathring{M} 07'43		retrograde	1127 Jan 02 j 11:59	7° \mathring{A} 35'03	
opposition	1119 Mar 03 j 10:09	18° \mathring{M} 45'39	1°23'31	opposition	1127 Mar 21 j 01:49	6° \mathring{A} 13'16	1°43'14
min. Earth dist.	1119 Mar 04 j 08:06	18° \mathring{M} 44'08	29.23546 AU	min. Earth dist.	1127 Mar 21 j 23:00	6° \mathring{A} 11'49	29.29118 AU
direct	1119 May 23 j 05:27	17° \mathring{M} 20'26		direct	1127 Jun 10 j 03:03	4° \mathring{A} 48'24	
max. Earth dist.	1119 Sep 06 j 02:59	19° \mathring{M} 49'45	31.23729 AU				
				conjunction	1127 Sep 24 j 17:52	7° \mathring{A} 19'36	1°37'32
conjunction	1119 Sep 07 j 02:19	19° \mathring{M} 51'55	1°19'35	minimum elong	1127 Sep 24 j 17:51	7° \mathring{A} 19'36	1°37'32
minimum elong	1119 Sep 07 j 02:19	19° \mathring{M} 51'55	1°19'36	max. Earth dist.	1127 Sep 23 j 18:39	7° \mathring{A} 17'27	31.29233 AU
retrograde	1119 Dec 18 j 12:29	22° \mathring{M} 18'42		retrograde	1128 Jan 04 j 22:19	9° \mathring{A} 46'15	
opposition	1120 Mar 04 j 20:54	20° \mathring{M} 56'39	1°26'26	opposition	1128 Mar 22 j 13:15	8° \mathring{A} 24'28	1°45'03
min. Earth dist.	1120 Mar 05 j 17:58	20° \mathring{M} 55'11	29.24084 AU	min. Earth dist.	1128 Mar 23 j 11:40	8° \mathring{A} 22'56	29.29543 AU
direct	1120 May 24 j 18:49	19° \mathring{M} 31'24		direct	1128 Jun 11 j 14:42	6° \mathring{A} 59'39	
				max. Earth dist.	1128 Sep 25 j 05:09	9° \mathring{A} 28'37	31.29583 AU
conjunction	1120 Sep 08 j 13:24	22° \mathring{M} 02'49	1°22'16				
minimum elong	1120 Sep 08 j 13:23	22° \mathring{M} 02'49	1°22'16	conjunction	1128 Sep 26 j 04:29	9° \mathring{A} 30'47	1°39'10
max. Earth dist.	1120 Sep 07 j 13:53	22° \mathring{M} 00'38	31.24290 AU	minimum elong	1128 Sep 26 j 04:29	9° \mathring{A} 30'47	1°39'09
retrograde	1120 Dec 19 j 22:37	24° \mathring{M} 29'33		retrograde	1129 Jan 06 j 08:34	11° \mathring{A} 57'24	
opposition	1121 Mar 07 j 07:47	23° \mathring{M} 07'29	1°29'15	opposition	1129 Mar 25 j 00:35	10° \mathring{A} 35'38	1°46'43
min. Earth dist.	1121 Mar 08 j 05:18	23° \mathring{M} 06'00	29.24706 AU	min. Earth dist.	1129 Mar 25 j 22:13	10° \mathring{A} 34'09	29.29815 AU
direct	1121 May 27 j 05:52	21° \mathring{M} 42'16		direct	1129 Jun 14 j 04:20	9° \mathring{A} 10'49	
max. Earth dist.	1121 Sep 10 j 01:47	24° \mathring{M} 11'30	31.24961 AU				
				conjunction	1129 Sep 28 j 15:07	11° \mathring{A} 41'54	1°40'39
conjunction	1121 Sep 11 j 00:29	24° \mathring{M} 13'37	1°24'50	minimum elong	1129 Sep 28 j 15:07	11° \mathring{A} 41'54	1°40'40
minimum elong	1121 Sep 11 j 00:29	24° \mathring{M} 13'37	1°24'51	max. Earth dist.	1129 Sep 27 j 15:18	11° \mathring{A} 39'41	31.29786 AU
retrograde	1121 Dec 22 j 07:39	26° \mathring{M} 40'17		retrograde	1130 Jan 08 j 19:26	14° \mathring{A} 08'29	
opposition	1122 Mar 09 j 18:36	25° \mathring{M} 18'16	1°31'55	opposition	1130 Mar 27 j 11:53	12° \mathring{A} 46'42	1°48'15
min. Earth dist.	1122 Mar 10 j 15:39	25° \mathring{M} 16'48	29.25423 AU	min. Earth dist.	1130 Mar 28 j 10:13	12° \mathring{A} 45'10	29.29975 AU
direct	1122 May 29 j 18:10	23° \mathring{M} 53'05		direct	1130 Jun 16 j 16:10	11° \mathring{A} 21'53	
max. Earth dist.	1122 Sep 12 j 11:58	26° \mathring{M} 22'13	31.25723 AU	max. Earth dist.	1130 Sep 30 j 02:32	13° \mathring{A} 50'44	31.29895 AU
conjunction	1122 Sep 13 j 11:24	26° \mathring{M} 24'24	1°27'17	conjunction	1130 Oct 01 j 01:38	13° \mathring{A} 52'53	1°42'00
minimum elong	1122 Sep 13 j 11:24	26° \mathring{M} 24'24	1°27'16	minimum elong	1130 Oct 01 j 01:38	13° \mathring{A} 52'53	1°42'00
retrograde	1122 Dec 24 j 17:42	28° \mathring{M} 51'02		retrograde	1131 Jan 11 j 04:17	16° \mathring{A} 19'26	
opposition	1123 Mar 12 j 05:28	27° \mathring{M} 29'04	1°34'28	opposition	1131 Mar 29 j 23:15	14° \mathring{A} 57'37	1°49'37

min. Earth dist. direct	1131 Mar 30 j 21:15 1131 Jun 19 j 05:36	14° 2 56'07 13° 2 32'48	29.30035 AU	min. Earth dist. direct	1139 Apr 17 j 15:05 1139 Jul 07 j 01:19	2° 2 21'06 0° 2 57'56	29.31579 AU
conjunction	1131 Oct 03 j 11:53	16° 2 03'42	1°43'13	conjunction	1139 Oct 20 j 19:43	3° 2 28'17	1°47'25
minimum elong	1131 Oct 03 j 11:53	16° 2 03'42	1°43'13	minimum elong	1139 Oct 20 j 19:43	3° 2 28'17	1°47'25
max. Earth dist.	1131 Oct 02 j 12:08	16° 2 01'29	31.29933 AU	max. Earth dist.	1139 Oct 20 j 00:25	3° 2 26'28	31.31482 AU
retrograde	1132 Jan 13 j 13:41	18° 2 30'14		retrograde	1140 Jan 30 j 23:41	5° 2 55'03	
opposition	1132 Mar 31 j 10:37	17° 2 08'22	1°50'49	opposition	1140 Apr 18 j 07:48	4° 2 33'10	1°54'40
min. Earth dist.	1132 Apr 01 j 08:19	17° 2 06'53	29.30079 AU	min. Earth dist.	1140 Apr 19 j 02:37	4° 2 31'53	29.31597 AU
direct	1132 Jun 20 j 16:30	15° 2 43'33		direct	1140 Jul 08 j 14:47	3° 2 08'44	
				max. Earth dist.	1140 Oct 21 j 09:30	5° 2 37'07	31.31435 AU
conjunction	1132 Oct 04 j 22:10	18° 2 14'21	1°44'16				
minimum elong	1132 Oct 04 j 22:10	18° 2 14'21	1°44'16	conjunction	1140 Oct 22 j 05:31	5° 2 39'00	1°47'15
max. Earth dist.	1132 Oct 03 j 23:58	18° 2 12'17	31.29984 AU	minimum elong	1140 Oct 22 j 05:31	5° 2 39'00	1°47'15
retrograde	1133 Jan 14 j 21:34	20° 2 40'52		retrograde	1141 Feb 01 j 10:13	8° 2 05'50	
opposition	1133 Apr 02 j 22:09	19° 2 18'58	1°51'52	opposition	1141 Apr 20 j 19:48	6° 2 43'55	1°54'25
min. Earth dist.	1133 Apr 03 j 19:48	19° 2 17'30	29.30155 AU	min. Earth dist.	1141 Apr 21 j 14:16	6° 2 42'39	29.31489 AU
direct	1133 Jun 23 j 04:14	17° 2 54'10		direct	1141 Jul 11 j 01:45	5° 2 19'30	
max. Earth dist.	1133 Oct 06 j 09:22	20° 2 22'45	31.30100 AU				
conjunction	1133 Oct 07 j 08:03	20° 2 24'52	1°45'11	conjunction	1141 Oct 24 j 15:21	7° 2 49'41	1°46'56
minimum elong	1133 Oct 07 j 08:03	20° 2 24'52	1°45'11	minimum elong	1141 Oct 24 j 15:21	7° 2 49'41	1°46'56
retrograde	1134 Jan 17 j 08:35	22° 2 51'23		max. Earth dist.	1141 Oct 23 j 20:41	7° 2 47'56	31.31252 AU
opposition	1134 Apr 05 j 09:32	21° 2 29'28	1°52'46	retrograde	1142 Feb 03 j 18:39	10° 2 16'34	
min. Earth dist.	1134 Apr 06 j 05:52	21° 2 28'05	29.30318 AU	opposition	1142 Apr 23 j 07:52	8° 2 54'36	1°54'00
direct	1134 Jun 25 j 14:21	20° 2 04'41		min. Earth dist.	1142 Apr 24 j 02:33	8° 2 53'20	29.31228 AU
				direct	1142 Jul 13 j 14:11	7° 2 30'13	
conjunction	1134 Oct 09 j 18:12	22° 2 35'19	1°45'56	max. Earth dist.	1142 Oct 26 j 05:38	9° 2 58'29	31.30940 AU
minimum elong	1134 Oct 09 j 18:11	22° 2 35'19	1°45'55				
max. Earth dist.	1134 Oct 08 j 20:54	22° 2 33'19	31.30301 AU	conjunction	1142 Oct 27 j 01:00	10° 2 00'18	1°46'28
retrograde	1135 Jan 19 j 17:34	25° 2 01'51		minimum elong	1142 Oct 27 j 01:00	10° 2 00'18	1°46'27
opposition	1135 Apr 07 j 21:00	23° 2 39'57	1°53'30	retrograde	1143 Feb 06 j 05:43	12° 2 27'13	
min. Earth dist.	1135 Apr 08 j 17:48	23° 2 38'32	29.30559 AU	opposition	1143 Apr 25 j 19:43	11° 2 05'13	1°53'25
direct	1135 Jun 28 j 01:55	22° 2 15'13		min. Earth dist.	1143 Apr 26 j 13:16	11° 2 04'01	29.30865 AU
max. Earth dist.	1135 Oct 11 j 06:43	24° 2 43'46	31.30585 AU	direct	1143 Jul 16 j 01:01	9° 2 40'49	
conjunction	1135 Oct 12 j 04:07	24° 2 45'47	1°46'32	conjunction	1143 Oct 29 j 10:42	12° 2 10'49	1°45'51
minimum elong	1135 Oct 12 j 04:07	24° 2 45'47	1°46'33	minimum elong	1143 Oct 29 j 10:42	12° 2 10'49	1°45'51
retrograde	1136 Jan 22 j 05:13	27° 2 12'21		max. Earth dist.	1143 Oct 28 j 16:39	12° 2 10'09	31.30538 AU
opposition	1136 Apr 09 j 08:32	25° 2 50'27	1°54'03	retrograde	1144 Feb 08 j 14:43	14° 2 13'47	
min. Earth dist.	1136 Apr 10 j 03:53	25° 2 49'08	29.30859 AU	opposition	1144 Apr 27 j 07:55	13° 2 15'42	1°52'41
direct	1136 Jun 29 j 13:40	24° 2 25'47		min. Earth dist.	1144 Apr 28 j 01:52	13° 2 14'29	29.30443 AU
				direct	1144 Jul 17 j 12:43	11° 2 51'19	
conjunction	1136 Oct 13 j 13:59	26° 2 56'18	1°46'59				
minimum elong	1136 Oct 13 j 13:59	26° 2 56'18	1°46'59	conjunction	1144 Oct 30 j 20:00	14° 2 21'12	1°45'05
max. Earth dist.	1136 Oct 12 j 17:27	26° 2 54'23	31.30889 AU	minimum elong	1144 Oct 30 j 20:00	14° 2 21'12	1°45'05
retrograde	1137 Jan 23 j 15:42	29° 2 22'56		max. Earth dist.	1144 Oct 30 j 02:12	14° 2 19'32	31.30124 AU
opposition	1137 Apr 11 j 20:20	28° 2 01'02	1°54'27		1144 Nov 17 j 05:09	15° 2	
min. Earth dist.	1137 Apr 12 j 16:20	27° 2 59'41	29.31165 AU	retrograde	1145 Feb 10 j 01:58	16° 2 48'13	
direct	1137 Jul 02 j 00:08	26° 2 36'26		opposition	1145 Apr 29 j 19:56	15° 2 26'05	1°51'47
				min. Earth dist.	1145 Apr 30 j 12:08	15° 2 24'59	29.30039 AU
conjunction	1137 Oct 15 j 23:54	29° 2 06'54	1°47'17		1145 May 16 j 02:58	15° 2 R	
minimum elong	1137 Oct 15 j 23:54	29° 2 06'54	1°47'18	direct	1145 Jul 20 j 00:10	14° 2 01'43	
max. Earth dist.	1137 Oct 15 j 03:52	29° 2 05'01	31.31181 AU		1145 Sep 19 j 12:28	15° 2	
	1137 Nov 09 j 02:40	0° 2		conjunction	1145 Nov 02 j 05:27	16° 2 31'31	1°44'10
retrograde	1138 Jan 26 j 02:33	1° 2 33'34		minimum elong	1145 Nov 02 j 05:27	16° 2 31'31	1°44'10
opposition	1138 Apr 14 j 07:55	0° 2 11'42	1°54'41	max. Earth dist.	1145 Nov 01 j 12:41	16° 2 29'56	31.29746 AU
min. Earth dist.	1138 Apr 15 j 02:50	0° 2 10'24	29.31418 AU	retrograde	1146 Feb 12 j 12:24	18° 2 58'36	
	1138 Apr 21 j 12:19	30° 2 R		opposition	1146 May 02 j 07:58	17° 2 36'24	1°50'44
direct	1138 Jul 04 j 13:34	28° 2 47'09		min. Earth dist.	1146 May 03 j 00:21	17° 2 35'18	29.29710 AU
	1138 Sep 12 j 03:22	0° 2		direct	1146 Jul 22 j 10:04	16° 2 12'04	
conjunction	1138 Oct 18 j 09:48	1° 2 17'34	1°47'26				
minimum elong	1138 Oct 18 j 09:48	1° 2 17'34	1°47'25	conjunction	1146 Nov 04 j 14:51	18° 2 41'48	1°43'06
max. Earth dist.	1138 Oct 17 j 13:30	1° 2 15'40	31.31386 AU	minimum elong	1146 Nov 04 j 14:51	18° 2 41'48	1°43'06
retrograde	1139 Jan 28 j 14:21	3° 2 44'18		max. Earth dist.	1146 Nov 03 j 23:11	18° 2 40'19	31.29472 AU
opposition	1139 Apr 16 j 19:50	2° 2 22'25	1°54'46	retrograde	1147 Feb 14 j 23:21	21° 2 08'58	
				opposition	1147 May 04 j 20:03	19° 2 46'45	1°49'31

min. Earth dist.	1147 May 05 j 10:39	19° M 45'46	29.29473 AU	min. Earth dist.	1155 May 23 j 10:12	7° ♂ 13'03	29.27241 AU
direct	1147 Jul 24 j 23:27	18° M 22'28		direct	1155 Aug 11 j 18:32	5° ♂ 49'56	
max. Earth dist.	1147 Nov 06 j 08:44	20° M 50'42	31.29284 AU				
conjunction	1147 Nov 07 j 00:04	20° M 52'09	1°41'54	conjunction	1155 Nov 24 j 02:52	8° ♂ 19'04	1°27'05
minimum elong	1147 Nov 07 j 00:05	20° M 52'09	1°41'54	minimum elong	1155 Nov 24 j 02:52	8° ♂ 19'04	1°27'06
retrograde	1148 Feb 17 j 11:55	23° M 19'25		max. Earth dist.	1155 Nov 23 j 17:15	8° ♂ 18'09	31.26807 AU
opposition	1148 May 06 j 08:18	21° M 57'12	1°48'09	retrograde	1156 Mar 06 j 00:33	10° ♂ 47'12	
min. Earth dist.	1148 May 06 j 22:32	21° M 56'14	29.29333 AU	opposition	1156 May 24 j 12:24	9° ♂ 24'43	1°31'45
direct	1148 Jul 26 j 10:45	20° M 32'59		min. Earth dist.	1156 May 24 j 21:19	9° ♂ 24'07	29.26495 AU
				direct	1156 Aug 13 j 08:04	8° ♂ 00'53	
conjunction	1148 Nov 08 j 09:26	23° M 02'37	1°40'32	conjunction	1156 Nov 25 j 12:04	10° ♂ 29'55	1°24'39
minimum elong	1148 Nov 08 j 09:26	23° M 02'37	1°40'32	minimum elong	1156 Nov 25 j 12:04	10° ♂ 29'55	1°24'39
max. Earth dist.	1148 Nov 07 j 19:49	23° M 01'20	31.29182 AU	max. Earth dist.	1156 Nov 25 j 02:32	10° ♂ 29'01	31.26043 AU
retrograde	1149 Feb 18 j 21:41	25° M 30'00		retrograde	1157 Mar 08 j 13:15	12° ♂ 58'08	
opposition	1149 May 08 j 20:32	24° M 07'47	1°46'37	opposition	1157 May 27 j 01:04	11° ♂ 35'33	1°29'05
min. Earth dist.	1149 May 09 j 09:46	24° M 06'53	29.29238 AU	min. Earth dist.	1157 May 27 j 09:41	11° ♂ 34'58	29.25732 AU
direct	1149 Jul 28 j 23:27	22° M 43'40		direct	1157 Aug 15 j 18:52	10° ♂ 11'43	
conjunction	1149 Nov 10 j 18:37	25° M 13'15	1°39'02	conjunction	1157 Nov 27 j 21:18	12° ♂ 40'38	1°22'05
minimum elong	1149 Nov 10 j 18:37	25° M 13'15	1°39'02	minimum elong	1157 Nov 27 j 21:18	12° ♂ 40'38	1°22'05
max. Earth dist.	1149 Nov 10 j 04:46	25° M 11'56	31.29102 AU	max. Earth dist.	1157 Nov 27 j 13:39	12° ♂ 39'55	31.25289 AU
retrograde	1150 Feb 21 j 08:54	27° M 40'45		retrograde	1158 Mar 10 j 23:04	15° ♂ 08'57	
opposition	1150 May 11 j 08:50	26° M 18'32	1°44'56	opposition	1158 May 29 j 13:45	13° ♂ 46'16	1°26'17
min. Earth dist.	1150 May 11 j 21:17	26° M 17'41	29.29152 AU	min. Earth dist.	1158 May 29 j 21:07	13° ♂ 45'47	29.24988 AU
direct	1150 Jul 31 j 10:21	24° M 54'30		direct	1158 Aug 18 j 07:46	12° ♂ 22'27	
conjunction	1150 Nov 13 j 04:01	27° M 24'02	1°37'23	conjunction	1158 Nov 30 j 06:21	14° ♂ 51'17	1°19'24
minimum elong	1150 Nov 13 j 04:01	27° M 24'02	1°37'22	minimum elong	1158 Nov 30 j 06:21	14° ♂ 51'17	1°19'24
max. Earth dist.	1150 Nov 12 j 15:54	27° M 22'54	31.28990 AU	max. Earth dist.	1158 Nov 29 j 22:43	14° ♂ 50'34	31.24588 AU
retrograde	1151 Feb 23 j 18:05	29° M 51'39		retrograde	1159 Mar 13 j 11:04	17° ♂ 19'43	
opposition	1151 May 13 j 21:14	28° M 29'26	1°43'06	opposition	1159 Jun 01 j 02:25	15° ♂ 56'59	1°23'22
min. Earth dist.	1151 May 14 j 09:39	28° M 28'36	29.29000 AU	min. Earth dist.	1159 Jun 01 j 08:34	15° ♂ 56'34	29.24334 AU
direct	1151 Aug 02 j 23:04	27° M 05'29		direct	1159 Aug 20 j 19:05	14° ♂ 33'11	
conjunction	1151 Nov 15 j 13:20	29° M 34'57	1°35'35	conjunction	1159 Dec 02 j 15:38	17° ♂ 01'58	1°16'37
minimum elong	1151 Nov 15 j 13:20	29° M 34'58	1°35'35	minimum elong	1159 Dec 02 j 15:38	17° ♂ 01'58	1°16'37
max. Earth dist.	1151 Nov 15 j 00:51	29° M 33'47	31.28808 AU	max. Earth dist.	1159 Dec 02 j 10:08	17° ♂ 01'27	31.23979 AU
	1151 Nov 26 j 15:57	0° ♂		retrograde	1160 Mar 14 j 21:07	19° ♂ 30'31	
retrograde	1152 Feb 26 j 06:08	2° ♂ 02'42		opposition	1160 Jun 02 j 15:16	18° ♂ 07'44	1°20'19
opposition	1152 May 15 j 09:47	0° ♂ 40'28	1°41'06	min. Earth dist.	1160 Jun 02 j 20:47	18° ♂ 07'22	29.23762 AU
min. Earth dist.	1152 May 15 j 20:47	0° ♂ 39'44	29.28766 AU	direct	1160 Aug 22 j 07:56	16° ♂ 44'01	
	1152 Jun 10 j 10:54	30° R M					
direct	1152 Aug 04 j 10:06	29° M 16'34		conjunction	1160 Dec 04 j 00:39	19° ♂ 12'44	1°13'42
	1152 Sep 25 j 19:00	0° ♂		minimum elong	1160 Dec 04 j 00:39	19° ♂ 12'44	1°13'42
conjunction	1152 Nov 16 j 22:42	1° ♂ 45'59	1°33'40	max. Earth dist.	1160 Dec 03 j 19:21	19° ♂ 12'14	31.23461 AU
minimum elong	1152 Nov 16 j 22:42	1° ♂ 45'59	1°33'39	retrograde	1161 Mar 17 j 09:25	21° ♂ 41'26	
max. Earth dist.	1152 Nov 16 j 11:27	1° ♂ 44'55	31.28508 AU	opposition	1161 Jun 05 j 04:00	20° ♂ 18'38	1°17'09
retrograde	1153 Feb 27 j 15:07	4° ♂ 13'51		min. Earth dist.	1161 Jun 05 j 07:41	20° ♂ 18'23	29.23268 AU
opposition	1153 May 17 j 22:30	2° ♂ 51'35	1°38'59	direct	1161 Aug 24 j 18:56	18° ♂ 54'58	
min. Earth dist.	1153 May 18 j 09:58	2° ♂ 50'48	29.28398 AU	conjunction	1161 Dec 06 j 09:57	21° ♂ 23'39	1°10'41
direct	1153 Aug 06 j 21:27	1° ♂ 27'44		minimum elong	1161 Dec 06 j 09:57	21° ♂ 23'39	1°10'41
conjunction	1153 Nov 19 j 08:07	3° ♂ 57'03	1°31'36	max. Earth dist.	1161 Dec 06 j 06:08	21° ♂ 23'18	31.22982 AU
minimum elong	1153 Nov 19 j 08:07	3° ♂ 57'03	1°31'36	retrograde	1162 Mar 19 j 18:58	23° ♂ 52'32	
max. Earth dist.	1153 Nov 18 j 20:55	3° ♂ 56'00	31.28080 AU	opposition	1162 Jun 07 j 16:47	22° ♂ 29'43	1°13'51
retrograde	1154 Mar 02 j 02:22	6° ♂ 25'01		min. Earth dist.	1162 Jun 07 j 20:35	22° ♂ 29'27	29.22794 AU
opposition	1154 May 20 j 10:55	5° ♂ 02'41	1°36'42	direct	1162 Aug 27 j 05:59	21° ♂ 06'08	
min. Earth dist.	1154 May 20 j 20:56	5° ♂ 02'01	29.27887 AU	conjunction	1162 Dec 08 j 19:14	23° ♂ 34'47	1°07'33
direct	1154 Aug 09 j 08:27	3° ♂ 38'51		minimum elong	1162 Dec 08 j 19:14	23° ♂ 34'47	1°07'33
conjunction	1154 Nov 21 j 17:35	6° ♂ 08'06	1°29'24	max. Earth dist.	1162 Dec 08 j 16:02	23° ♂ 34'29	31.22518 AU
minimum elong	1154 Nov 21 j 17:35	6° ♂ 08'06	1°29'24	retrograde	1163 Mar 22 j 06:47	26° ♂ 03'50	
max. Earth dist.	1154 Nov 21 j 06:54	6° ♂ 07'05	31.27498 AU	opposition	1163 Jun 10 j 05:39	24° ♂ 41'00	1°10'28
retrograde	1155 Mar 04 j 13:20	8° ♂ 36'10		min. Earth dist.	1163 Jun 10 j 07:38	24° ♂ 40'52	29.22304 AU
opposition	1155 May 22 j 23:43	7° ♂ 13'46	1°34'18	direct	1163 Aug 29 j 16:40	23° ♂ 17'30	

conjunction	1163 Dec 11 j 04:29	25° \mathring{A} 46'07	1°04'20	direct	1171 Sep 16 j 14:10	10° \mathring{B} 51'31	
minimum elong	1163 Dec 11 j 04:29	25° \mathring{A} 46'07	1°04'20				
max. Earth dist.	1163 Dec 11 j 02:00	25° \mathring{A} 45'53	31.21999 AU	conjunction	1171 Dec 28 j 08:16	13° \mathring{B} 19'40	0°35'35
retrograde	1164 Mar 23 j 18:33	28° \mathring{A} 15'21		minimum elong	1171 Dec 28 j 08:16	13° \mathring{B} 19'40	0°35'35
opposition	1164 Jun 11 j 18:48	26° \mathring{A} 52'30	1°06'58	max. Earth dist.	1171 Dec 28 j 12:12	13° \mathring{B} 20'02	31.14454 AU
min. Earth dist.	1164 Jun 11 j 21:05	26° \mathring{A} 52'21	29.21754 AU	retrograde	1172 Apr 10 j 17:19	15° \mathring{B} 50'00	
direct	1164 Aug 31 j 02:13	25° \mathring{A} 29'05		opposition	1172 Jun 30 j 03:13	14° \mathring{B} 26'30	0°35'56
				min. Earth dist.	1172 Jun 29 j 21:56	14° \mathring{B} 26'52	29.13995 AU
conjunction	1164 Dec 12 j 13:59	27° \mathring{A} 57'40	1°01'00	direct	1172 Sep 18 j 01:47	13° \mathring{B} 03'10	
minimum elong	1164 Dec 12 j 13:59	27° \mathring{A} 57'40	1°01'00				
max. Earth dist.	1164 Dec 12 j 12:41	27° \mathring{A} 57'32	31.21407 AU	conjunction	1172 Dec 29 j 17:47	15° \mathring{B} 31'16	0°31'42
	1165 Feb 13 j 15:18	0° \mathring{B}		minimum elong	1172 Dec 29 j 17:47	15° \mathring{B} 31'16	0°31'42
retrograde	1165 Mar 26 j 06:39	0° \mathring{B} 27'04		max. Earth dist.	1172 Dec 29 j 22:34	15° \mathring{B} 31'43	31.13539 AU
	1165 May 07 j 12:21	30° \mathring{R} \mathring{A}		retrograde	1173 Apr 13 j 04:42	18° \mathring{B} 01'46	
opposition	1165 Jun 14 j 07:41	29° \mathring{A} 04'11	1°03'22	opposition	1173 Jul 02 j 16:13	16° \mathring{B} 38'13	0°31'45
min. Earth dist.	1165 Jun 14 j 08:31	29° \mathring{A} 04'08	29.21093 AU	min. Earth dist.	1173 Jul 02 j 10:57	16° \mathring{B} 38'34	29.13135 AU
direct	1165 Sep 02 j 14:45	27° \mathring{A} 40'48		direct	1173 Sep 20 j 11:39	15° \mathring{B} 14'54	
	1165 Dec 10 j 20:29	0° \mathring{B}					
conjunction	1165 Dec 14 j 23:25	0° \mathring{B} 09'22	0°57'36	conjunction	1174 Jan 01 j 03:24	17° \mathring{B} 42'58	0°27'46
minimum elong	1165 Dec 14 j 23:26	0° \mathring{B} 09'22	0°57'36	minimum elong	1174 Jan 01 j 03:24	17° \mathring{B} 42'58	0°27'46
max. Earth dist.	1165 Dec 14 j 21:49	0° \mathring{B} 09'13	31.20681 AU	max. Earth dist.	1174 Jan 01 j 09:48	17° \mathring{B} 43'34	31.12726 AU
retrograde	1166 Mar 28 j 20:29	2° \mathring{B} 38'56		retrograde	1174 Apr 15 j 16:13	20° \mathring{B} 13'37	
opposition	1166 Jun 16 j 20:49	1° \mathring{B} 16'00	0°59'40	opposition	1174 Jul 05 j 05:12	18° \mathring{B} 50'02	0°27'31
min. Earth dist.	1166 Jun 16 j 21:37	1° \mathring{B} 15'57	29.20300 AU	min. Earth dist.	1174 Jul 04 j 22:04	18° \mathring{B} 50'31	29.12344 AU
	1166 Aug 14 j 17:12	30° \mathring{R} \mathring{A}		direct	1174 Sep 22 j 23:26	17° \mathring{B} 26'45	
direct	1166 Sep 05 j 00:44	29° \mathring{A} 52'39					
	1166 Sep 26 j 03:18	0° \mathring{B}		conjunction	1175 Jan 03 j 12:52	19° \mathring{B} 54'48	0°23'47
conjunction	1166 Dec 17 j 09:01	2° \mathring{B} 21'10	0°54'06	minimum elong	1175 Jan 03 j 12:52	19° \mathring{B} 54'48	0°23'47
minimum elong	1166 Dec 17 j 09:01	2° \mathring{B} 21'10	0°54'06	max. Earth dist.	1175 Jan 03 j 19:21	19° \mathring{B} 55'24	31.11961 AU
max. Earth dist.	1166 Dec 17 j 08:55	2° \mathring{B} 21'10	31.19812 AU	retrograde	1175 Apr 18 j 05:37	22° \mathring{B} 25'38	
retrograde	1167 Mar 31 j 07:11	4° \mathring{B} 50'53		opposition	1175 Jul 07 j 18:24	21° \mathring{B} 01'59	0°23'14
opposition	1167 Jun 19 j 09:55	3° \mathring{B} 27'53	0°55'54	min. Earth dist.	1175 Jul 07 j 10:55	21° \mathring{B} 02'30	29.11601 AU
min. Earth dist.	1167 Jun 19 j 09:51	3° \mathring{B} 27'53	29.19345 AU	direct	1175 Sep 25 j 08:26	19° \mathring{B} 38'46	
direct	1167 Sep 07 j 13:16	2° \mathring{B} 04'33					
conjunction	1167 Dec 19 j 18:29	4° \mathring{B} 33'00	0°50'32	conjunction	1176 Jan 05 j 22:41	22° \mathring{B} 06'48	0°19'46
minimum elong	1167 Dec 19 j 18:29	4° \mathring{B} 33'00	0°50'32	minimum elong	1176 Jan 05 j 22:41	22° \mathring{B} 06'48	0°19'46
max. Earth dist.	1167 Dec 19 j 17:59	4° \mathring{B} 32'57	31.18806 AU	max. Earth dist.	1176 Jan 06 j 07:04	22° \mathring{B} 07'35	31.11224 AU
retrograde	1168 Apr 01 j 20:36	7° \mathring{B} 02'50		retrograde	1176 Apr 19 j 17:18	24° \mathring{B} 37'48	
opposition	1168 Jun 20 j 23:03	5° \mathring{B} 39'44	0°52'02	opposition	1176 Jul 09 j 07:31	23° \mathring{B} 14'07	0°18'55
min. Earth dist.	1168 Jun 20 j 22:12	5° \mathring{B} 39'47	29.18286 AU	min. Earth dist.	1176 Jul 08 j 22:58	23° \mathring{B} 14'42	29.10852 AU
direct	1168 Sep 09 j 01:03	4° \mathring{B} 16'24		direct	1176 Sep 26 j 20:24	21° \mathring{B} 50'57	
conjunction	1168 Dec 21 j 03:59	6° \mathring{B} 44'47	0°46'53				
minimum elong	1168 Dec 21 j 03:59	6° \mathring{B} 44'47	0°46'53	conjunction	1177 Jan 07 j 08:26	24° \mathring{B} 18'57	0°15'44
max. Earth dist.	1168 Dec 21 j 05:17	6° \mathring{B} 44'54	31.17702 AU	minimum elong	1177 Jan 07 j 08:25	24° \mathring{B} 18'57	0°15'43
retrograde	1169 Apr 04 j 07:45	9° \mathring{B} 14'44		behind sun begin	1177 Jan 07 j 06:45	24° \mathring{B} 18'48	
opposition	1169 Jun 23 j 12:11	7° \mathring{B} 51'31	0°48'07	behind sun end	1177 Jan 07 j 10:06	24° \mathring{B} 19'07	
min. Earth dist.	1169 Jun 23 j 11:01	7° \mathring{B} 51'36	29.17147 AU	max. Earth dist.	1177 Jan 07 j 16:32	24° \mathring{B} 19'43	31.10464 AU
direct	1169 Sep 11 j 14:39	6° \mathring{B} 28'10		retrograde	1177 Apr 22 j 07:52	26° \mathring{B} 50'09	
				opposition	1177 Jul 11 j 20:42	25° \mathring{B} 26'25	0°14'35
conjunction	1169 Dec 23 j 13:24	8° \mathring{B} 56'28	0°43'11	min. Earth dist.	1177 Jul 11 j 11:29	25° \mathring{B} 27'03	29.10065 AU
minimum elong	1169 Dec 23 j 13:24	8° \mathring{B} 56'28	0°43'10	direct	1177 Sep 29 j 07:14	24° \mathring{B} 03'17	
max. Earth dist.	1169 Dec 23 j 14:48	8° \mathring{B} 56'36	31.16567 AU				
retrograde	1170 Apr 06 j 20:02	11° \mathring{B} 26'32		conjunction	1178 Jan 09 j 18:29	26° \mathring{B} 31'17	0°11'40
opposition	1170 Jun 26 j 01:02	10° \mathring{B} 03'13	0°44'07	minimum elong	1178 Jan 09 j 18:29	26° \mathring{B} 31'17	0°11'39
min. Earth dist.	1170 Jun 25 j 22:09	10° \mathring{B} 03'25	29.16022 AU	behind sun begin	1178 Jan 09 j 13:53	26° \mathring{B} 30'52	
direct	1170 Sep 14 j 02:04	8° \mathring{B} 39'51		behind sun end	1178 Jan 09 j 23:06	26° \mathring{B} 31'43	
				max. Earth dist.	1178 Jan 10 j 04:08	26° \mathring{B} 32'11	31.09623 AU
conjunction	1170 Dec 25 j 22:54	11° \mathring{B} 08'05	0°39'24	retrograde	1178 Apr 24 j 20:04	29° \mathring{B} 02'39	
minimum elong	1170 Dec 25 j 22:54	11° \mathring{B} 08'05	0°39'24	opposition	1178 Jul 14 j 09:51	27° \mathring{B} 38'52	0°10'13
max. Earth dist.	1170 Dec 26 j 01:47	11° \mathring{B} 08'21	31.15460 AU	min. Earth dist.	1178 Jul 14 j 00:33	27° \mathring{B} 39'30	29.09173 AU
retrograde	1171 Apr 09 j 05:28	13° \mathring{B} 38'16		direct	1178 Oct 01 j 19:51	26° \mathring{B} 15'45	
opposition	1171 Jun 28 j 14:13	12° \mathring{B} 14'52	0°40'03				
min. Earth dist.	1171 Jun 28 j 11:08	12° \mathring{B} 15'04	29.14957 AU	conjunction	1179 Jan 12 j 04:34	28° \mathring{B} 43'45	0°07'35
				minimum elong	1179 Jan 12 j 04:33	28° \mathring{B} 43'45	0°07'35
conjunction	1171 Dec 25 j 22:54	11° \mathring{B} 08'05	0°39'24	behind sun begin	1179 Jan 11 j 22:43	28° \mathring{B} 43'13	
minimum elong	1171 Dec 25 j 22:54	11° \mathring{B} 08'05	0°39'24	behind sun end	1179 Jan 12 j 10:23	28° \mathring{B} 44'17	
max. Earth dist.	1171 Dec 26 j 01:47	11° \mathring{B} 08'21	31.15460 AU	max. Earth dist.	1179 Jan 12 j 13:59	28° \mathring{B} 44'38	31.08686 AU

	1179 Feb 16 j 06:04	0°		conjunction	1186 Jan 27 j 03:46	14°	11'40"	0°-21'-7"
retrograde	1179 Apr 27 j 09:43	1°	15'16"	minimum elong	1186 Jan 27 j 03:46	14°	11'40"	0°21'08"
	1179 Jul 11 j 16:30	30°	51'25"	max. Earth dist.	1186 Jan 27 j 18:35	14°	13'03"	31.01196 AU
opposition	1179 Jul 16 j 23:07	29°	51'25"	0°05'49"	1186 Feb 17 j 17:39	15°		
min. Earth dist.	1179 Jul 16 j 12:28	29°	52'08"	29.08177 AU	1186 May 12 j 23:49	16°	44'11"	
direct	1179 Oct 04 j 07:12	28°	28'19"		1186 Aug 01 j 18:29	15°	19'47"	0°-24'-45"
	1179 Dec 20 j 06:59	0°			1186 Aug 01 j 02:35	15°	20'52"	29.00834 AU
					1186 Aug 13 j 22:34	15°		
conjunction	1180 Jan 14 j 14:38	0°	56'17"	0°03'29"	1186 Oct 19 j 13:01	13°	56'41"	
minimum elong	1180 Jan 14 j 14:38	0°	56'17"	0°03'30"	1186 Dec 21 j 03:34	15°		
behind sun begin	1180 Jan 14 j 08:17	0°	55'43"					
behind sun end	1180 Jan 14 j 21:00	0°	56'52"		conjunction	1187 Jan 29 j 14:16	16°	24'32"
max. Earth dist.	1180 Jan 15 j 00:58	0°	57'15"	31.07623 AU	minimum elong	1187 Jan 29 j 14:16	16°	24'32"
retrograde	1180 Apr 28 j 20:49	3°	27'57"		max. Earth dist.	1187 Jan 30 j 06:55	16°	26'07"
opposition	1180 Jul 18 j 12:27	2°	04'01"	0°01'26"	retrograde	1187 May 15 j 12:31	18°	57'14"
min. Earth dist.	1180 Jul 18 j 02:10	2°	04'43"	29.07061 AU	opposition	1187 Aug 04 j 07:34	17°	32'48"
direct	1180 Oct 05 j 19:38	0°	40'55"		min. Earth dist.	1187 Aug 03 j 15:17	17°	33'55"
desc. node	1180 Nov 15 j 04:43	1°	08'14"		direct	1187 Oct 22 j 00:41	16°	09'44"
conjunction	1181 Jan 16 j 00:52	3°	08'50"	0°00'-42"	conjunction	1188 Feb 01 j 00:42	18°	37'37"
minimum elong	1181 Jan 16 j 00:51	3°	08'50"	0°00'43"	minimum elong	1188 Feb 01 j 00:42	18°	37'37"
behind sun begin	1181 Jan 15 j 18:27	3°	08'16"		max. Earth dist.	1188 Feb 01 j 17:29	18°	39'12"
behind sun end	1181 Jan 16 j 07:14	3°	09'25"		retrograde	1188 May 17 j 02:58	21°	10'29"
max. Earth dist.	1181 Jan 16 j 11:45	3°	09'52"	31.06473 AU	opposition	1188 Aug 05 j 20:36	19°	46'01"
retrograde	1181 May 01 j 09:40	5°	40'37"		min. Earth dist.	1188 Aug 05 j 02:58	19°	47'14"
opposition	1181 Jul 21 j 01:22	4°	16'36"	0°-2'-57"	direct	1188 Oct 23 j 11:23	18°	23'00"
min. Earth dist.	1181 Jul 20 j 13:30	4°	17'24"	29.05875 AU				
direct	1181 Oct 08 j 07:50	2°	53'28"		conjunction	1189 Feb 02 j 11:29	20°	50'55"
					minimum elong	1189 Feb 02 j 11:29	20°	50'55"
conjunction	1182 Jan 18 j 10:58	5°	21'22"	0°-4'-51"	max. Earth dist.	1189 Feb 03 j 05:09	20°	52'35"
minimum elong	1182 Jan 18 j 10:58	5°	21'22"	0°04'52"	retrograde	1189 May 19 j 15:47	23°	23'56"
behind sun begin	1182 Jan 18 j 04:43	5°	20'48"		opposition	1189 Aug 08 j 09:34	21°	59'27"
behind sun end	1182 Jan 18 j 17:13	5°	21'56"		min. Earth dist.	1189 Aug 07 j 16:24	22°	00'38"
max. Earth dist.	1182 Jan 18 j 22:16	5°	22'25"	31.05267 AU	direct	1189 Oct 25 j 23:51	20°	36'29"
retrograde	1182 May 03 j 20:57	7°	53'17"					
opposition	1182 Jul 23 j 14:32	6°	29'09"	0°-7'-20"	conjunction	1190 Feb 04 j 22:23	23°	04'25"
min. Earth dist.	1182 Jul 23 j 02:58	6°	29'57"	29.04682 AU	minimum elong	1190 Feb 04 j 22:23	23°	04'25"
direct	1182 Oct 10 j 18:19	5°	06'01"		max. Earth dist.	1190 Feb 05 j 16:33	23°	06'08"
					retrograde	1190 May 22 j 06:37	25°	37'35"
conjunction	1183 Jan 20 j 21:02	7°	33'52"	0°-8'-56"	opposition	1190 Aug 10 j 22:34	24°	13'05"
minimum elong	1183 Jan 20 j 21:03	7°	33'52"	0°08'57"	min. Earth dist.	1190 Aug 10 j 04:02	24°	14'21"
behind sun begin	1183 Jan 20 j 15:32	7°	33'22"		direct	1190 Oct 28 j 12:23	22°	50'07"
behind sun end	1183 Jan 21 j 02:34	7°	34'22"					
max. Earth dist.	1183 Jan 21 j 10:00	7°	35'05"	31.04096 AU	conjunction	1191 Feb 07 j 09:16	25°	18'05"
retrograde	1183 May 06 j 08:09	10°	05'55"		minimum elong	1191 Feb 07 j 09:15	25°	18'05"
opposition	1183 Jul 26 j 03:32	8°	41'42"	0°-11'-43"	max. Earth dist.	1191 Feb 08 j 03:25	25°	19'48"
min. Earth dist.	1183 Jul 25 j 14:09	8°	42'37"	29.03545 AU	retrograde	1191 May 24 j 18:21	27°	51'25"
direct	1183 Oct 13 j 06:19	7°	18'33"		opposition	1191 Aug 13 j 11:50	26°	26'51"
					min. Earth dist.	1191 Aug 12 j 18:03	26°	28'04"
conjunction	1184 Jan 23 j 07:12	9°	46'23"	0°-13'-1"	direct	1191 Oct 30 j 23:10	25°	03'54"
minimum elong	1184 Jan 23 j 07:12	9°	46'23"	0°13'01"				
behind sun begin	1184 Jan 23 j 03:14	9°	46'01"		conjunction	1192 Feb 09 j 20:32	27°	31'51"
behind sun end	1184 Jan 23 j 11:09	9°	46'44"		minimum elong	1192 Feb 09 j 20:31	27°	31'51"
max. Earth dist.	1184 Jan 23 j 20:08	9°	47'36"	31.03007 AU	max. Earth dist.	1192 Feb 10 j 15:39	27°	33'40"
retrograde	1184 May 07 j 21:14	12°	18'35"			1192 May 08 j 05:28	0°	19'12"
opposition	1184 Jul 27 j 16:35	10°	54'17"	0°-16'-5"	retrograde	1192 May 26 j 06:23	0°	19'12"
min. Earth dist.	1184 Jul 27 j 02:51	10°	55'13"	29.02526 AU		1192 Jun 13 j 12:44	30°	19'12"
direct	1184 Oct 14 j 14:58	9°	31'08"		min. Earth dist.	1192 Aug 14 j 05:55	28°	41'58"
					opposition	1192 Aug 15 j 00:46	28°	40'40"
conjunction	1185 Jan 24 j 17:32	11°	58'57"	0°-17'-4"	direct	1192 Nov 01 j 11:39	27°	17'42"
minimum elong	1185 Jan 24 j 17:32	11°	58'57"	0°17'06"				
max. Earth dist.	1185 Jan 25 j 08:27	12°	00'22"	31.02042 AU	conjunction	1193 Feb 11 j 07:41	29°	45'39"
retrograde	1185 May 10 j 09:03	14°	31'19"		minimum elong	1193 Feb 11 j 07:41	29°	45'39"
opposition	1185 Jul 30 j 05:32	13°	06'58"	0°-20'-25"	max. Earth dist.	1193 Feb 12 j 02:03	29°	47'24"
min. Earth dist.	1185 Jul 29 j 14:31	13°	08'00"	29.01618 AU		1193 Feb 17 j 15:01	0°	19'12"
direct	1185 Oct 17 j 02:47	11°	43'50"		retrograde	1193 May 28 j 19:33	2°	19'12"
					opposition	1193 Aug 17 j 13:52	0°	54'29"

min. Earth dist.	1193 Aug 16 j 19:25	0° ✕ 55'45	28.95524 AU	direct	1201 Nov 21 j 17:54	17° ✕ 21'59	
	1193 Sep 22 j 12:02	30° ✕ 31'28					
direct	1193 Nov 03 j 21:25	29° ✕ 31'28		conjunction	1202 Mar 03 j 15:15	19° ✕ 50'10	-1°-18'-5
	1193 Dec 14 j 21:56	0° ✕		minimum elong	1202 Mar 03 j 15:15	19° ✕ 50'10	1°18'06
				max. Earth dist.	1202 Mar 04 j 13:58	19° ✕ 52'19	30.89185 AU
conjunction	1194 Feb 13 j 18:58	1° ✕ 59'24	0°-52'-2	retrograde	1202 Jun 18 j 19:25	22° ✕ 24'40	
minimum elong	1194 Feb 13 j 18:57	1° ✕ 59'24	0°52'03	min. Earth dist.	1202 Sep 06 j 10:31	21° ✕ 01'05	28.89037 AU
max. Earth dist.	1194 Feb 14 j 14:44	2° ✕ 01'16	30.94962 AU	opposition	1202 Sep 07 j 08:25	20° ✕ 59'34	-1°-25'-1
retrograde	1194 May 31 j 07:01	4° ✕ 33'01		direct	1202 Nov 24 j 03:31	19° ✕ 36'32	
min. Earth dist.	1194 Aug 19 j 07:31	3° ✕ 09'32	28.94481 AU				
opposition	1194 Aug 20 j 02:44	3° ✕ 08'13	0°-57'-35	conjunction	1203 Mar 06 j 03:32	22° ✕ 04'48	-1°-20'-52
direct	1194 Nov 06 j 10:01	1° ✕ 45'10		minimum elong	1203 Mar 06 j 03:32	22° ✕ 04'48	1°20'53
				max. Earth dist.	1203 Mar 07 j 03:20	22° ✕ 07'03	30.88702 AU
conjunction	1195 Feb 16 j 06:09	4° ✕ 13'04	0°-55'-36	retrograde	1203 Jun 21 j 07:21	24° ✕ 39'24	
minimum elong	1195 Feb 16 j 06:09	4° ✕ 13'04	0°55'38	opposition	1203 Sep 09 j 21:03	23° ✕ 14'18	-1°-27'-55
max. Earth dist.	1195 Feb 17 j 01:26	4° ✕ 14'54	30.93928 AU	min. Earth dist.	1203 Sep 08 j 22:48	23° ✕ 15'50	28.88518 AU
retrograde	1195 Jun 02 j 20:48	6° ✕ 46'47		direct	1203 Nov 26 j 15:55	21° ✕ 51'16	
opposition	1195 Aug 22 j 15:38	5° ✕ 21'52	-1°-1'-22				
min. Earth dist.	1195 Aug 21 j 19:59	5° ✕ 23'14	28.93478 AU	conjunction	1204 Mar 07 j 15:48	24° ✕ 19'35	-1°-23'-31
direct	1195 Nov 08 j 20:07	3° ✕ 58'46		minimum elong	1204 Mar 07 j 15:48	24° ✕ 19'35	1°23'32
				max. Earth dist.	1204 Mar 08 j 14:24	24° ✕ 21'44	30.88137 AU
conjunction	1196 Feb 18 j 17:29	6° ✕ 26'41	0°-59'-6	retrograde	1204 Jun 22 j 21:03	26° ✕ 54'17	
minimum elong	1196 Feb 18 j 17:29	6° ✕ 26'41	0°59'07	min. Earth dist.	1204 Sep 10 j 11:46	25° ✕ 30'41	28.87905 AU
max. Earth dist.	1196 Feb 19 j 14:19	6° ✕ 28'39	30.92943 AU	opposition	1204 Sep 11 j 09:46	25° ✕ 29'09	-1°-30'-42
retrograde	1196 Jun 04 j 08:46	9° ✕ 00'29		direct	1204 Nov 28 j 01:48	24° ✕ 06'07	
min. Earth dist.	1196 Aug 23 j 08:38	7° ✕ 36'51	28.92540 AU				
opposition	1196 Aug 24 j 04:28	7° ✕ 35'29	-1°-5'-3	conjunction	1205 Mar 10 j 04:21	26° ✕ 34'29	-1°-26'-3
direct	1196 Nov 10 j 07:37	6° ✕ 12'22		minimum elong	1205 Mar 10 j 04:21	26° ✕ 34'29	1°26'04
				max. Earth dist.	1205 Mar 11 j 03:41	26° ✕ 36'41	30.87453 AU
conjunction	1197 Feb 20 j 04:53	8° ✕ 40'16	-1°-2'-31	retrograde	1205 Jun 25 j 09:03	29° ✕ 09'14	
minimum elong	1197 Feb 20 j 04:53	8° ✕ 40'16	1°02'31	opposition	1205 Sep 13 j 22:15	27° ✕ 44'03	-1°-33'-20
max. Earth dist.	1197 Feb 21 j 01:38	8° ✕ 42'14	30.92060 AU	min. Earth dist.	1205 Sep 13 j 00:48	27° ✕ 45'33	28.87169 AU
retrograde	1197 Jun 06 j 23:19	11° ✕ 14'10		direct	1205 Nov 30 j 12:52	26° ✕ 20'58	
opposition	1197 Aug 26 j 17:01	9° ✕ 49'07	-1°-8'-39				
min. Earth dist.	1197 Aug 25 j 20:00	9° ✕ 50'34	28.91721 AU	conjunction	1206 Mar 12 j 16:47	28° ✕ 49'22	-1°-28'-27
direct	1197 Nov 12 j 18:26	8° ✕ 25'58		minimum elong	1206 Mar 12 j 16:46	28° ✕ 49'22	1°28'28
				max. Earth dist.	1206 Mar 13 j 15:19	28° ✕ 51'30	30.86687 AU
conjunction	1198 Feb 22 j 16:21	10° ✕ 53'55	-1°-5'-50		1206 Apr 14 j 00:00	0° ✕	
minimum elong	1198 Feb 22 j 16:21	10° ✕ 53'55	1°05'50	retrograde	1206 Jun 27 j 23:28	1° ✕ 24'09	
max. Earth dist.	1198 Feb 23 j 13:59	10° ✕ 55'58	30.91287 AU		1206 Sep 15 j 19:06	30° ✕ 31'28	
retrograde	1198 Jun 09 j 12:31	13° ✕ 27'55		opposition	1206 Sep 16 j 10:45	29° ✕ 58'55	-1°-35'-50
min. Earth dist.	1198 Aug 28 j 09:04	12° ✕ 04'16	28.91018 AU	min. Earth dist.	1206 Sep 15 j 12:48	0° ✕ 00'26	28.86378 AU
opposition	1198 Aug 29 j 05:47	12° ✕ 02'50	-1°-12'-9	direct	1206 Dec 03 j 00:08	28° ✕ 35'45	
direct	1198 Nov 15 j 06:36	10° ✕ 39'42			1207 Feb 14 j 00:19	0° ✕	
conjunction	1199 Feb 25 j 03:49	13° ✕ 07'41	-1°-9'-3	conjunction	1207 Mar 15 j 05:09	1° ✕ 04'10	-1°-30'-44
minimum elong	1199 Feb 25 j 03:49	13° ✕ 07'41	1°09'04	minimum elong	1207 Mar 15 j 05:08	1° ✕ 04'10	1°30'44
max. Earth dist.	1199 Feb 26 j 02:07	13° ✕ 09'48	30.90649 AU	max. Earth dist.	1207 Mar 16 j 04:05	1° ✕ 06'20	30.85870 AU
retrograde	1199 Jun 12 j 03:30	15° ✕ 41'48		retrograde	1207 Jun 30 j 12:18	3° ✕ 38'59	
opposition	1199 Aug 31 j 18:26	14° ✕ 16'41	-1°-15'-32	opposition	1207 Sep 18 j 23:15	2° ✕ 13'40	-1°-38'-11
min. Earth dist.	1199 Aug 30 j 20:12	14° ✕ 18'14	28.90435 AU	min. Earth dist.	1207 Sep 18 j 02:06	2° ✕ 15'08	28.85570 AU
direct	1199 Nov 17 j 19:00	12° ✕ 53'34		direct	1207 Dec 05 j 12:44	0° ✕ 50'27	
conjunction	1200 Feb 27 j 15:29	15° ✕ 21'37	-1°-12'-10	conjunction	1208 Mar 16 j 17:44	3° ✕ 18'53	-1°-32'-51
minimum elong	1200 Feb 27 j 15:28	15° ✕ 21'37	1°12'11	minimum elong	1208 Mar 16 j 17:43	3° ✕ 18'53	1°32'53
max. Earth dist.	1200 Feb 28 j 13:53	15° ✕ 23'44	30.90105 AU	max. Earth dist.	1208 Mar 17 j 16:46	3° ✕ 21'04	30.85088 AU
retrograde	1200 Jun 13 j 16:02	17° ✕ 55'52		retrograde	1208 Jul 02 j 02:34	5° ✕ 53'42	
min. Earth dist.	1200 Sep 01 j 09:36	16° ✕ 32'14	28.89942 AU	opposition	1208 Sep 20 j 11:21	4° ✕ 28'19	-1°-40'-24
opposition	1200 Sep 02 j 07:06	16° ✕ 30'45	-1°-18'-49	min. Earth dist.	1208 Sep 19 j 13:10	4° ✕ 29'52	28.84822 AU
direct	1200 Nov 19 j 05:29	15° ✕ 07'40		direct	1208 Dec 07 j 01:16	3° ✕ 05'01	
conjunction	1201 Mar 01 j 03:26	17° ✕ 35'46	-1°-15'-11	conjunction	1209 Mar 19 j 06:17	5° ✕ 33'30	-1°-34'-51
minimum elong	1201 Mar 01 j 03:25	17° ✕ 35'46	1°15'12	minimum elong	1209 Mar 19 j 06:17	5° ✕ 33'30	1°34'52
max. Earth dist.	1201 Mar 02 j 02:55	17° ✕ 38'00	30.89640 AU	max. Earth dist.	1209 Mar 20 j 05:08	5° ✕ 35'39	30.84372 AU
retrograde	1201 Jun 16 j 05:27	20° ✕ 10'08		retrograde	1209 Jul 04 j 15:30	8° ✕ 08'20	
opposition	1201 Sep 04 j 19:41	18° ✕ 45'02	-1°-21'-58	opposition	1209 Sep 22 j 23:39	6° ✕ 42'53	-1°-42'-27
min. Earth dist.	1201 Sep 03 j 21:07	18° ✕ 46'36	28.89490 AU	min. Earth dist.	1209 Sep 22 j 02:22	6° ✕ 44'22	28.84173 AU

direct	1209 Dec 09 j 12:26	5°♈19'33		minimum elong	1218 Apr 09 j 03:38	25°♈46'58	1°46'01
				max. Earth dist.	1218 Apr 10 j 01:11	25°♈49'00	30.82178 AU
conjunction	1210 Mar 21 j 18:50	7°♈48'02	-1°-36'-42	retrograde	1218 Jul 25 j 14:48	28°♈21'56	
minimum elong	1210 Mar 21 j 18:50	7°♈48'02	1°36'43	opposition	1218 Oct 13 j 11:40	26°♈56'32	-1°-53'-36
max. Earth dist.	1210 Mar 22 j 18:41	7°♈50'18	30.83784 AU	min. Earth dist.	1218 Oct 12 j 16:20	26°♈57'53	28.82155 AU
retrograde	1210 Jul 07 j 05:45	10°♈22'53		direct	1218 Dec 29 j 19:51	25°♈33'00	
opposition	1210 Sep 25 j 11:44	8°♈57'24	-1°-44'-21				
min. Earth dist.	1210 Sep 24 j 13:22	8°♈58'58	28.83652 AU	conjunction	1219 Apr 11 j 17:16	28°♈02'08	-1°-46'-27
direct	1210 Dec 12 j 01:56	7°♈34'01		minimum elong	1219 Apr 11 j 17:16	28°♈02'08	1°46'27
				max. Earth dist.	1219 Apr 12 j 15:01	28°♈04'11	30.81878 AU
conjunction	1211 Mar 24 j 07:28	10°♈02'34	-1°-38'-24		1219 Jun 09 j 22:23	0°♈	
minimum elong	1211 Mar 24 j 07:27	10°♈02'34	1°38'25	retrograde	1219 Jul 28 j 05:22	0°♈37'03	
max. Earth dist.	1211 Mar 25 j 06:32	10°♈04'45	30.83333 AU		1219 Sep 15 j 12:05	30°♈	
retrograde	1211 Jul 09 j 19:22	12°♈37'26		opposition	1219 Oct 15 j 23:17	29°♈11'38	-1°-54'00
opposition	1211 Sep 27 j 23:54	11°♈11'56	-1°-46'-5	min. Earth dist.	1219 Oct 15 j 03:33	29°♈13'01	28.81840 AU
min. Earth dist.	1211 Sep 27 j 02:07	11°♈13'27	28.83286 AU	direct	1220 Jan 01 j 09:46	27°♈48'02	
direct	1211 Dec 14 j 12:35	9°♈48'31			1220 Apr 05 j 15:22	0°♈	
conjunction	1212 Mar 25 j 20:20	12°♈17'07	-1°-39'-57	conjunction	1220 Apr 13 j 06:47	0°♈17'14	-1°-46'-44
minimum elong	1212 Mar 25 j 20:20	12°♈17'07	1°39'59	minimum elong	1220 Apr 13 j 06:47	0°♈17'14	1°46'46
max. Earth dist.	1212 Mar 26 j 20:36	12°♈19'25	30.83032 AU	max. Earth dist.	1220 Apr 14 j 03:12	0°♈19'09	30.81568 AU
retrograde	1212 Jul 11 j 07:11	14°♈52'01		retrograde	1220 Jul 29 j 18:41	2°♈52'06	
opposition	1212 Sep 29 j 11:54	13°♈26'31	-1°-47'-40	opposition	1220 Oct 17 j 11:01	1°♈26'39	-1°-54'-14
min. Earth dist.	1212 Sep 28 j 13:35	13°♈28'05	28.83044 AU	min. Earth dist.	1220 Oct 16 j 16:25	1°♈27'57	28.81556 AU
direct	1212 Dec 16 j 00:59	12°♈03'06		direct	1221 Jan 02 j 21:09	0°♈03'00	
conjunction	1213 Mar 28 j 09:10	14°♈31'46	-1°-41'-21	conjunction	1221 Apr 15 j 20:25	2°♈32'15	-1°-46'-52
minimum elong	1213 Mar 28 j 09:10	14°♈31'46	1°41'22	minimum elong	1221 Apr 15 j 20:25	2°♈32'15	1°46'52
max. Earth dist.	1213 Mar 29 j 08:22	14°♈33'57	30.82851 AU	max. Earth dist.	1221 Apr 16 j 17:33	2°♈34'14	30.81311 AU
retrograde	1213 Jul 13 j 20:47	17°♈06'41		retrograde	1221 Aug 01 j 06:51	5°♈07'02	
opposition	1213 Oct 01 j 23:52	15°♈41'12	-1°-49'-5	opposition	1221 Oct 19 j 22:27	3°♈41'35	-1°-54'-17
min. Earth dist.	1213 Oct 01 j 01:45	15°♈42'45	28.82918 AU	min. Earth dist.	1221 Oct 19 j 03:38	3°♈42'55	28.81338 AU
direct	1213 Dec 18 j 10:52	14°♈17'48		direct	1222 Jan 05 j 10:03	2°♈17'53	
conjunction	1214 Mar 30 j 22:15	16°♈46'33	-1°-42'-36	conjunction	1222 Apr 18 j 09:53	4°♈47'11	-1°-46'-50
minimum elong	1214 Mar 30 j 22:14	16°♈46'33	1°42'37	minimum elong	1222 Apr 18 j 09:53	4°♈47'11	1°46'51
max. Earth dist.	1214 Mar 31 j 22:25	16°♈48'50	30.82755 AU	max. Earth dist.	1222 Apr 19 j 05:40	4°♈49'03	30.81156 AU
retrograde	1214 Jul 16 j 08:56	19°♈21'30		retrograde	1222 Aug 03 j 20:47	7°♈21'55	
opposition	1214 Oct 04 j 11:52	17°♈56'03	-1°-50'-19	opposition	1222 Oct 22 j 09:57	5°♈56'29	-1°-54'-9
min. Earth dist.	1214 Oct 03 j 14:14	17°♈57'34	28.82846 AU	min. Earth dist.	1222 Oct 21 j 15:28	5°♈57'47	28.81255 AU
direct	1214 Dec 20 j 21:42	16°♈32'39		direct	1223 Jan 07 j 20:38	4°♈32'43	
conjunction	1215 Apr 02 j 11:17	19°♈01'29	-1°-43'-41	conjunction	1223 Apr 20 j 23:31	7°♈02'06	-1°-46'-38
minimum elong	1215 Apr 02 j 11:17	19°♈01'29	1°43'41	minimum elong	1223 Apr 20 j 23:31	7°♈02'06	1°46'38
max. Earth dist.	1215 Apr 03 j 10:29	19°♈03'40	30.82700 AU	max. Earth dist.	1223 Apr 21 j 20:11	7°♈04'02	30.81135 AU
retrograde	1215 Jul 18 j 22:56	21°♈36'28		retrograde	1223 Aug 06 j 08:24	9°♈36'46	
opposition	1215 Oct 06 j 23:51	20°♈11'03	-1°-51'-24	opposition	1223 Oct 24 j 21:25	8°♈11'21	-1°-53'-51
min. Earth dist.	1215 Oct 06 j 02:05	20°♈12'35	28.82784 AU	min. Earth dist.	1223 Oct 24 j 03:23	8°♈12'38	28.81301 AU
direct	1215 Dec 23 j 08:38	18°♈47'38		direct	1224 Jan 10 j 07:57	6°♈47'34	
conjunction	1216 Apr 04 j 00:45	21°♈16'34	-1°-44'-37	conjunction	1224 Apr 22 j 13:12	9°♈17'00	-1°-46'-16
minimum elong	1216 Apr 04 j 00:45	21°♈16'34	1°44'38	minimum elong	1224 Apr 22 j 13:12	9°♈17'00	1°46'17
max. Earth dist.	1216 Apr 04 j 23:51	21°♈18'45	30.82601 AU	max. Earth dist.	1224 Apr 23 j 08:44	9°♈18'50	30.81266 AU
retrograde	1216 Jul 20 j 11:15	23°♈51'35		retrograde	1224 Aug 07 j 21:08	11°♈51'38	
opposition	1216 Oct 08 j 11:46	22°♈26'11	-1°-52'-18	opposition	1224 Oct 26 j 08:40	10°♈26'15	-1°-53'-23
min. Earth dist.	1216 Oct 07 j 15:22	22°♈27'37	28.82655 AU	min. Earth dist.	1224 Oct 25 j 14:25	10°♈27'32	28.81505 AU
direct	1216 Dec 24 j 20:11	21°♈02'45		direct	1225 Jan 11 j 18:53	9°♈02'26	
conjunction	1217 Apr 06 j 14:17	23°♈31'46	-1°-45'-23	conjunction	1225 Apr 25 j 02:59	11°♈31'58	-1°-45'-45
minimum elong	1217 Apr 06 j 14:17	23°♈31'46	1°45'23	minimum elong	1225 Apr 25 j 02:59	11°♈31'58	1°45'45
max. Earth dist.	1217 Apr 07 j 12:39	23°♈33'52	30.82437 AU	max. Earth dist.	1225 Apr 25 j 22:47	11°♈33'49	30.81534 AU
retrograde	1217 Jul 23 j 01:40	26°♈06'45		retrograde	1225 Aug 10 j 08:25	14°♈06'33	
opposition	1217 Oct 10 j 23:40	24°♈41'21	-1°-53'-2	opposition	1225 Oct 28 j 20:06	12°♈41'13	-1°-52'-44
min. Earth dist.	1217 Oct 10 j 02:49	24°♈42'49	28.82443 AU	min. Earth dist.	1225 Oct 28 j 02:56	12°♈42'26	28.81838 AU
direct	1217 Dec 27 j 08:24	23°♈17'53		direct	1226 Jan 14 j 05:32	11°♈17'25	
conjunction	1218 Apr 09 j 03:38	25°♈46'58	-1°-46'00	conjunction	1226 Apr 27 j 16:40	13°♈47'02	-1°-45'-3

minimum elong	1226 Apr 27 j 16:40	13° 8 47'02	1°45'05		1234 Mar 23 j 16:41	0° II	
max. Earth dist.	1226 Apr 28 j 11:53	13° 8 48'50	30.81936 AU				
	1226 May 31 j 09:36	15° 8		conjunction	1234 May 16 j 10:00	1° II 48'18	-1°-33'-54
retrograde	1226 Aug 12 j 22:29	16° 8 21'34		minimum elong	1234 May 16 j 10:00	1° II 48'18	1°33'56
	1226 Oct 29 j 03:12	15° R 8		max. Earth dist.	1234 May 16 j 22:54	1° II 49'31	30.84400 AU
opposition	1226 Oct 31 j 07:25	14° 8 56'18	-1°-51'-54	retrograde	1234 Aug 31 j 04:28	4° II 21'57	
min. Earth dist.	1226 Oct 30 j 13:43	14° 8 57'34	28.82275 AU	opposition	1234 Nov 18 j 00:37	2° II 56'58	-1°-39'-19
direct	1227 Jan 16 j 16:36	13° 8 32'29		min. Earth dist.	1234 Nov 17 j 14:03	2° II 57'43	28.84630 AU
	1227 Apr 01 j 19:32	15° 8		direct	1235 Feb 03 j 17:31	1° II 32'44	
conjunction	1227 Apr 30 j 06:38	16° 8 02'13	-1°-44'-12	conjunction	1235 May 19 j 00:12	4° II 02'57	-1°-31'-51
minimum elong	1227 Apr 30 j 06:38	16° 8 02'13	1°44'13	minimum elong	1235 May 19 j 00:12	4° II 02'57	1°31'51
max. Earth dist.	1227 May 01 j 01:07	16° 8 03'56	30.82396 AU	max. Earth dist.	1235 May 19 j 12:04	4° II 04'04	30.84718 AU
retrograde	1227 Aug 15 j 10:49	18° 8 36'42		retrograde	1235 Sep 02 j 17:27	6° II 36'27	
opposition	1227 Nov 02 j 18:43	17° 8 11'31	-1°-50'-54	opposition	1235 Nov 20 j 11:17	5° II 11'31	-1°-37'-3
min. Earth dist.	1227 Nov 02 j 02:45	17° 8 12'39	28.82749 AU	min. Earth dist.	1235 Nov 20 j 00:19	5° II 12'17	28.84997 AU
direct	1228 Jan 19 j 03:50	15° 8 47'41		direct	1236 Feb 06 j 04:50	3° II 47'13	
conjunction	1228 May 01 j 20:52	18° 8 17'31	-1°-43'-11	conjunction	1236 May 20 j 14:24	6° II 17'30	-1°-29'-39
minimum elong	1228 May 01 j 20:52	18° 8 17'31	1°43'13	minimum elong	1236 May 20 j 14:24	6° II 17'30	1°29'41
max. Earth dist.	1228 May 02 j 15:05	18° 8 19'13	30.82868 AU	max. Earth dist.	1236 May 21 j 01:36	6° II 18'33	30.85142 AU
retrograde	1228 Aug 17 j 00:56	20° 8 51'55		retrograde	1236 Sep 04 j 04:19	8° II 50'53	
opposition	1228 Nov 04 j 05:59	19° 8 26'48	-1°-49'-44	opposition	1236 Nov 21 j 22:12	7° II 26'00	-1°-34'-38
min. Earth dist.	1228 Nov 03 j 13:57	19° 8 27'56	28.83187 AU	min. Earth dist.	1236 Nov 21 j 12:43	7° II 26'41	28.85488 AU
direct	1229 Jan 20 j 17:33	18° 8 02'57		direct	1237 Feb 07 j 16:00	6° II 01'40	
conjunction	1229 May 04 j 10:56	20° 8 32'53	-1°-42'-1	conjunction	1237 May 23 j 04:30	8° II 32'02	-1°-27'-19
minimum elong	1229 May 04 j 10:56	20° 8 32'53	1°42'01	minimum elong	1237 May 23 j 04:30	8° II 32'02	1°27'20
max. Earth dist.	1229 May 05 j 03:23	20° 8 34'25	30.83267 AU	max. Earth dist.	1237 May 23 j 15:34	8° II 33'04	30.85709 AU
retrograde	1229 Aug 19 j 14:08	23° 8 07'12		retrograde	1237 Sep 06 j 17:06	11° II 05'18	
opposition	1229 Nov 06 j 17:20	21° 8 42'08	-1°-48'-24	opposition	1237 Nov 24 j 08:53	9° II 40'30	-1°-32'-4
min. Earth dist.	1229 Nov 06 j 02:54	21° 8 43'09	28.83549 AU	min. Earth dist.	1237 Nov 23 j 23:01	9° II 41'12	28.86110 AU
direct	1230 Jan 23 j 04:57	20° 8 18'14		direct	1238 Feb 10 j 05:03	8° II 16'08	
conjunction	1230 May 07 j 01:15	22° 8 48'14	-1°-40'-42	conjunction	1238 May 25 j 18:36	10° II 46'37	-1°-24'-51
minimum elong	1230 May 07 j 01:15	22° 8 48'14	1°40'43	minimum elong	1238 May 25 j 18:37	10° II 46'37	1°24'53
max. Earth dist.	1230 May 07 j 17:41	22° 8 49'46	30.83586 AU	max. Earth dist.	1238 May 26 j 04:20	10° II 47'31	30.86398 AU
retrograde	1230 Aug 22 j 03:19	25° 8 22'26		retrograde	1238 Sep 09 j 05:44	13° II 19'46	
opposition	1230 Nov 09 j 04:31	23° 8 57'24	-1°-46'-54	opposition	1238 Nov 26 j 19:38	11° II 55'04	-1°-29'-21
min. Earth dist.	1230 Nov 08 j 14:26	23° 8 58'23	28.83812 AU	min. Earth dist.	1238 Nov 26 j 11:09	11° II 55'40	28.86855 AU
direct	1231 Jan 25 j 18:19	22° 8 33'27		direct	1239 Feb 12 j 15:41	10° II 30'42	
conjunction	1231 May 09 j 15:24	25° 8 03'29	-1°-39'-13	conjunction	1239 May 28 j 08:56	13° II 01'17	-1°-22'-15
minimum elong	1231 May 09 j 15:25	25° 8 03'29	1°39'13	minimum elong	1239 May 28 j 08:56	13° II 01'17	1°22'16
max. Earth dist.	1231 May 10 j 05:43	25° 8 04'49	30.83820 AU	max. Earth dist.	1239 May 28 j 18:50	13° II 02'13	30.87189 AU
retrograde	1231 Aug 24 j 17:43	27° 8 37'34		retrograde	1239 Sep 11 j 18:55	15° II 34'20	
opposition	1231 Nov 11 j 15:42	26° 8 12'32	-1°-45'-14	opposition	1239 Nov 29 j 06:18	14° II 09'44	-1°-26'-30
min. Earth dist.	1231 Nov 11 j 02:37	26° 8 13'27	28.84014 AU	min. Earth dist.	1239 Nov 28 j 22:08	14° II 10'19	28.87653 AU
direct	1232 Jan 28 j 06:22	24° 8 48'31		direct	1240 Feb 15 j 04:50	12° II 45'23	
conjunction	1232 May 11 j 05:47	27° 8 18'36	-1°-37'-36	conjunction	1240 May 29 j 23:12	15° II 16'05	-1°-19'-32
minimum elong	1232 May 11 j 05:47	27° 8 18'36	1°37'37	minimum elong	1240 May 29 j 23:12	15° II 16'05	1°19'33
max. Earth dist.	1232 May 11 j 20:17	27° 8 19'57	30.83999 AU	max. Earth dist.	1240 May 30 j 06:58	15° II 16'48	30.87999 AU
retrograde	1232 Aug 26 j 04:44	29° 8 52'31		retrograde	1240 Sep 13 j 09:26	17° II 49'01	
opposition	1232 Nov 13 j 02:40	28° 8 27'30	-1°-43'-25	opposition	1240 Nov 30 j 16:58	16° II 24'31	-1°-23'-31
min. Earth dist.	1232 Nov 12 j 14:37	28° 8 28'21	28.84175 AU	min. Earth dist.	1240 Nov 30 j 09:52	16° II 25'01	28.88455 AU
direct	1233 Jan 29 j 18:54	27° 8 03'25		direct	1241 Feb 16 j 16:56	15° II 00'09	
conjunction	1233 May 13 j 19:56	29° 8 33'32	-1°-35'-49	conjunction	1241 Jun 01 j 13:40	17° II 30'58	-1°-16'-41
minimum elong	1233 May 13 j 19:56	29° 8 33'32	1°35'50	minimum elong	1241 Jun 01 j 13:41	17° II 30'58	1°16'41
max. Earth dist.	1233 May 14 j 08:46	29° 8 34'44	30.84180 AU	max. Earth dist.	1241 Jun 01 j 21:27	17° II 31'41	30.88772 AU
	1233 May 25 j 16:14	0° II		retrograde	1241 Sep 15 j 20:43	20° II 03'47	
retrograde	1233 Aug 28 j 17:39	2° II 07'19		opposition	1241 Dec 03 j 03:45	18° II 39'22	-1°-20'-25
opposition	1233 Nov 15 j 13:37	0° II 42'19	-1°-41'-27	min. Earth dist.	1241 Dec 02 j 21:52	18° II 39'47	28.89184 AU
min. Earth dist.	1233 Nov 15 j 01:43	0° II 43'09	28.84372 AU	direct	1242 Feb 19 j 05:35	17° II 15'00	
	1233 Dec 11 j 14:29	30° R 8					
direct	1234 Feb 01 j 06:28	29° 8 18'08		conjunction	1242 Jun 04 j 03:53	19° II 45'52	-1°-13'-43

minimum elong	1242 Jun 04 j 03:53	19°II45'52	1°13'45	minimum elong	1250 Jun 22 j 20:48	7°☾39'26	0°46'38
max. Earth dist.	1242 Jun 04 j 09:30	19°II46'23	30.89468 AU	max. Earth dist.	1250 Jun 22 j 20:18	7°☾39'23	30.94318 AU
retrograde	1242 Sep 18 j 10:18	22°II18'32		retrograde	1250 Oct 06 j 04:48	10°☾10'39	
opposition	1242 Dec 05 j 14:27	20°II54'12	-1°-17'-11	opposition	1250 Dec 23 j 01:44	8°☾46'40	0°-47'-49
min. Earth dist.	1242 Dec 05 j 09:07	20°II54'35	28.89826 AU	min. Earth dist.	1250 Dec 23 j 02:52	8°☾46'35	28.94832 AU
direct	1243 Feb 21 j 17:32	19°II29'47		direct	1251 Mar 11 j 17:22	7°☾21'45	
conjunction	1243 Jun 06 j 18:23	22°II00'43	-1°-10'-39	conjunction	1251 Jun 25 j 10:41	9°☾53'00	0°-42'-51
minimum elong	1243 Jun 06 j 18:23	22°II00'43	1°10'40	minimum elong	1251 Jun 25 j 10:41	9°☾53'00	0°42'52
max. Earth dist.	1243 Jun 06 j 23:34	22°II01'12	30.90056 AU	max. Earth dist.	1251 Jun 25 j 08:23	9°☾52'47	30.95344 AU
retrograde	1243 Sep 20 j 21:35	24°II33'13		retrograde	1251 Oct 08 j 18:20	12°☾24'03	
opposition	1243 Dec 08 j 01:06	23°II08'56	-1°-13'-51	opposition	1251 Dec 25 j 11:52	11°☾00'11	0°-43'-46
min. Earth dist.	1243 Dec 07 j 21:36	23°II09'11	28.90365 AU	min. Earth dist.	1251 Dec 25 j 13:12	11°☾00'05	28.95900 AU
direct	1244 Feb 24 j 04:54	21°II44'27		direct	1252 Mar 13 j 05:21	9°☾35'16	
conjunction	1244 Jun 08 j 08:43	24°II15'26	-1°-7'-29	conjunction	1252 Jun 27 j 00:42	12°☾06'36	0°-39'-2
minimum elong	1244 Jun 08 j 08:43	24°II15'26	1°07'31	minimum elong	1252 Jun 27 j 00:43	12°☾06'36	0°39'03
max. Earth dist.	1244 Jun 08 j 12:12	24°II15'45	30.90572 AU	max. Earth dist.	1252 Jun 26 j 22:28	12°☾06'24	30.96436 AU
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opposition	1244 Dec 09 j 11:36	25°II23'30	-1°-10'-25	opposition	1252 Dec 26 j 22:16	13°☾13'46	0°-39'-40
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direct	1245 Feb 25 j 16:39	23°II58'56		direct	1253 Mar 15 j 16:54	11°☾48'52	
conjunction	1245 Jun 10 j 22:49	26°II29'56	-1°-4'-13	conjunction	1253 Jun 29 j 14:26	14°☾20'16	0°-35'-9
minimum elong	1245 Jun 10 j 22:49	26°II29'56	1°04'14	minimum elong	1253 Jun 29 j 14:26	14°☾20'16	0°35'10
max. Earth dist.	1245 Jun 11 j 01:25	26°II30'11	30.91033 AU	max. Earth dist.	1253 Jun 29 j 10:37	14°☾19'55	30.97540 AU
retrograde	1245 Sep 24 j 19:12	29°II02'04		retrograde	1253 Oct 12 j 17:55	16°☾51'04	
opposition	1245 Dec 11 j 22:12	27°II37'51	-1°-6'-52	opposition	1253 Dec 29 j 08:33	15°☾27'24	0°-35'-29
min. Earth dist.	1245 Dec 11 j 20:29	27°II37'58	28.91305 AU	min. Earth dist.	1253 Dec 29 j 11:28	15°☾27'12	28.98081 AU
direct	1246 Feb 28 j 04:06	26°II13'13		direct	1254 Mar 18 j 04:51	14°☾02'30	
conjunction	1246 Jun 13 j 12:58	28°II44'14	-1°00'-52	conjunction	1254 Jul 02 j 04:24	16°☾33'59	0°-31'-14
minimum elong	1246 Jun 13 j 12:59	28°II44'14	1°00'53	minimum elong	1254 Jul 02 j 04:24	16°☾33'59	0°31'15
max. Earth dist.	1246 Jun 13 j 14:58	28°II44'25	30.91514 AU	max. Earth dist.	1254 Jul 01 j 23:38	16°☾33'32	30.98577 AU
retrograde	1246 Jul 18 j 23:06	0°☾		retrograde	1254 Oct 15 j 03:50	19°☾04'37	
opposition	1246 Sep 27 j 06:45	1°☾16'10		opposition	1254 Dec 31 j 18:53	17°☾41'04	0°-31'-16
min. Earth dist.	1246 Dec 09 j 15:04	30°R II		min. Earth dist.	1254 Dec 31 j 23:51	17°☾40'43	28.99080 AU
direct	1246 Dec 14 j 08:26	29°II51'58	-1°-3'-14	direct	1255 Mar 20 j 15:38	16°☾16'09	
conjunction	1246 Dec 14 j 06:39	29°II52'06	28.91797 AU	conjunction	1255 Jul 04 j 18:23	18°☾47'41	0°-27'-15
direct	1247 Mar 02 j 16:35	28°II27'14		minimum elong	1255 Jul 04 j 18:23	18°☾47'41	0°27'16
conjunction	1247 Jun 16 j 03:00	0°☾58'18	0°-57'-25	max. Earth dist.	1255 Jul 04 j 12:30	18°☾47'08	30.99534 AU
minimum elong	1247 Jun 16 j 03:01	0°☾58'18	0°57'26	retrograde	1255 Oct 17 j 15:27	21°☾18'09	
max. Earth dist.	1247 Jun 16 j 03:35	0°☾58'21	30.92039 AU	opposition	1256 Jan 03 j 05:11	19°☾54'41	0°-27'00
retrograde	1247 Sep 29 j 17:50	3°☾30'03		min. Earth dist.	1256 Jan 03 j 10:19	19°☾54'19	28.99974 AU
opposition	1247 Dec 16 j 18:51	2°☾05'52	0°-59'-31	direct	1256 Mar 22 j 03:46	18°☾29'44	
min. Earth dist.	1247 Dec 16 j 18:28	2°☾05'54	28.92369 AU	conjunction	1256 Jul 06 j 08:09	21°☾01'18	0°-23'-15
direct	1248 Mar 04 j 03:08	0°☾41'04		minimum elong	1256 Jul 06 j 08:09	21°☾01'18	0°23'16
conjunction	1248 Jun 17 j 17:04	3°☾12'09	0°-53'-53	max. Earth dist.	1256 Jul 06 j 00:38	21°☾00'37	31.00377 AU
minimum elong	1248 Jun 17 j 17:05	3°☾12'09	0°53'55	retrograde	1256 Oct 19 j 01:56	23°☾31'37	
max. Earth dist.	1248 Jun 17 j 17:50	3°☾12'13	30.92663 AU	opposition	1257 Jan 04 j 15:32	22°☾08'12	0°-22'-42
retrograde	1248 Oct 01 j 05:06	5°☾43'42		min. Earth dist.	1257 Jan 04 j 22:19	22°☾07'44	29.00784 AU
opposition	1248 Dec 18 j 05:05	4°☾19'35	0°-55'-42	direct	1257 Mar 24 j 13:59	20°☾43'12	
min. Earth dist.	1248 Dec 18 j 04:49	4°☾19'36	28.93045 AU	conjunction	1257 Jul 08 j 21:55	23°☾14'48	0°-19'-13
direct	1249 Mar 06 j 16:49	2°☾54'43		minimum elong	1257 Jul 08 j 21:55	23°☾14'48	0°19'14
conjunction	1249 Jun 20 j 06:54	5°☾25'50	0°-50'-17	max. Earth dist.	1257 Jul 08 j 14:12	23°☾14'06	31.01156 AU
minimum elong	1249 Jun 20 j 06:54	5°☾25'50	0°50'18	retrograde	1257 Oct 21 j 12:28	25°☾44'57	
max. Earth dist.	1249 Jun 20 j 05:54	5°☾25'45	30.93415 AU	opposition	1258 Jan 07 j 01:44	24°☾21'35	0°-18'-22
retrograde	1249 Oct 03 j 17:59	7°☾57'13		min. Earth dist.	1258 Jan 07 j 09:00	24°☾21'04	29.01530 AU
opposition	1249 Dec 20 j 15:24	6°☾33'09	0°-51'-48	direct	1258 Mar 27 j 03:35	22°☾56'32	
min. Earth dist.	1249 Dec 20 j 15:40	6°☾33'08	28.93876 AU	conjunction	1258 Jul 11 j 11:25	25°☾28'09	0°-15'-10
direct	1250 Mar 09 j 04:50	5°☾08'14		minimum elong	1258 Jul 11 j 11:24	25°☾28'09	0°15'11
conjunction	1250 Jun 22 j 20:48	7°☾39'26	0°-46'-36	behind sun begin	1258 Jul 11 j 09:35	25°☾27'59	
				behind sun end	1258 Jul 11 j 13:14	25°☾28'19	




















































































































max. Earth dist.	1258 Jul 11 j 01:42	25° $\overline{52}$ 27'16	31.01892 AU	retrograde	1264 Nov 05 j 19:11	11° $\overline{0}$ 14'18	
retrograde	1258 Oct 24 j 00:31	27° $\overline{5}$ 58'07		opposition	1265 Jan 22 j 00:58	9° $\overline{0}$ 51'25	0°12'12
opposition	1259 Jan 09 j 11:57	26° $\overline{5}$ 34'47	0°-14'-1	min. Earth dist.	1265 Jan 22 j 11:59	9° $\overline{0}$ 50'38	29.08274 AU
min. Earth dist.	1259 Jan 09 j 20:01	26° $\overline{5}$ 34'13	29.02266 AU	direct	1265 Apr 11 j 16:09	8° $\overline{0}$ 26'15	
direct	1259 Mar 29 j 15:39	25° $\overline{5}$ 09'41					
conjunction	1259 Jul 14 j 01:02	27° $\overline{5}$ 41'19	0°-11'-6	conjunction	1265 Jul 27 j 07:53	10° $\overline{0}$ 58'02	0°13'31
minimum elong	1259 Jul 14 j 01:02	27° $\overline{5}$ 41'19	0°11'06	minimum elong	1265 Jul 27 j 07:53	10° $\overline{0}$ 58'02	0°13'31
behind sun begin	1259 Jul 13 j 20:11	27° $\overline{5}$ 40'54		behind sun begin	1265 Jul 27 j 04:21	10° $\overline{0}$ 57'43	
behind sun end	1259 Jul 14 j 05:52	27° $\overline{5}$ 41'45		behind sun end	1265 Jul 27 j 11:25	10° $\overline{0}$ 58'21	
max. Earth dist.	1259 Jul 13 j 15:35	27° $\overline{5}$ 40'28	31.02629 AU	max. Earth dist.	1265 Jul 26 j 18:04	10° $\overline{0}$ 56'46	31.08886 AU
retrograde	1259 Sep 30 j 22:31	0° $\overline{0}$		retrograde	1265 Nov 08 j 04:59	13° $\overline{0}$ 26'57	
retrograde	1259 Oct 26 j 10:35	0° $\overline{0}$ 11'06		opposition	1266 Jan 24 j 11:14	12° $\overline{0}$ 04'09	0°16'33
	1259 Nov 21 j 06:17	30° \overline{R} $\overline{5}$		min. Earth dist.	1266 Jan 24 j 23:41	12° $\overline{0}$ 03'16	29.09511 AU
opposition	1260 Jan 11 j 22:05	28° $\overline{5}$ 47'49	0°-9'-40	direct	1266 Apr 14 j 01:59	10° $\overline{0}$ 39'00	
min. Earth dist.	1260 Jan 12 j 07:12	28° $\overline{5}$ 47'11	29.03014 AU	conjunction	1266 Jul 29 j 21:00	13° $\overline{0}$ 10'49	0°17'34
direct	1260 Mar 31 j 04:08	27° $\overline{5}$ 22'40		minimum elong	1266 Jul 29 j 21:00	13° $\overline{0}$ 10'49	0°17'34
conjunction	1260 Jul 15 j 14:19	29° $\overline{5}$ 54'19	0°-7'-2	max. Earth dist.	1266 Jul 29 j 07:05	13° $\overline{0}$ 09'32	31.10087 AU
minimum elong	1260 Jul 15 j 14:20	29° $\overline{5}$ 54'19	0°07'03		1266 Sep 22 j 15:06	15° $\overline{0}$	
behind sun begin	1260 Jul 15 j 08:15	29° $\overline{5}$ 53'47		retrograde	1266 Nov 10 j 14:41	15° $\overline{0}$ 39'36	
behind sun end	1260 Jul 15 j 20:24	29° $\overline{5}$ 54'51			1266 Dec 30 j 22:37	15° \overline{R} $\overline{0}$	
max. Earth dist.	1260 Jul 15 j 03:10	29° $\overline{5}$ 53'18	31.03416 AU	opposition	1267 Jan 26 j 21:35	14° $\overline{0}$ 16'53	0°20'52
retrograde	1260 Oct 27 j 23:40	2° $\overline{0}$ 23'55		min. Earth dist.	1267 Jan 27 j 10:35	14° $\overline{0}$ 15'59	29.10658 AU
opposition	1261 Jan 13 j 08:16	1° $\overline{0}$ 00'41	0°-5'-17	direct	1267 Apr 16 j 14:59	12° $\overline{0}$ 51'45	
min. Earth dist.	1261 Jan 13 j 17:16	1° $\overline{0}$ 00'03	29.03849 AU		1267 Jul 21 j 18:51	15° $\overline{0}$	
direct	1261 Feb 22 j 07:06	30° \overline{R} $\overline{5}$		conjunction	1267 Aug 01 j 10:02	15° $\overline{0}$ 23'35	0°21'35
	1261 Apr 02 j 17:00	29° $\overline{5}$ 35'30		minimum elong	1267 Aug 01 j 10:02	15° $\overline{0}$ 23'35	0°21'35
	1261 May 11 j 13:50	0° $\overline{0}$		max. Earth dist.	1267 Jul 31 j 18:03	15° $\overline{0}$ 22'07	31.11176 AU
conjunction	1261 Jul 18 j 03:30	2° $\overline{0}$ 07'09	0°-2'-57	retrograde	1267 Nov 13 j 02:09	17° $\overline{0}$ 52'14	
minimum elong	1261 Jul 18 j 03:29	2° $\overline{0}$ 07'09	0°02'58	opposition	1268 Jan 29 j 07:56	16° $\overline{0}$ 29'35	0°25'09
behind sun begin	1261 Jul 17 j 20:54	2° $\overline{0}$ 06'35		min. Earth dist.	1268 Jan 29 j 21:45	16° $\overline{0}$ 28'37	29.11698 AU
behind sun end	1261 Jul 18 j 10:03	2° $\overline{0}$ 07'44		direct	1268 Apr 18 j 01:55	15° $\overline{0}$ 04'26	
max. Earth dist.	1261 Jul 17 j 16:48	2° $\overline{0}$ 06'11	31.04293 AU	conjunction	1268 Aug 02 j 23:07	17° $\overline{0}$ 36'17	0°25'35
retrograde	1261 Oct 30 j 10:11	4° $\overline{0}$ 36'36		minimum elong	1268 Aug 02 j 23:07	17° $\overline{0}$ 36'17	0°25'35
opposition	1262 Jan 15 j 18:31	3° $\overline{0}$ 13'25	0°00'-54	max. Earth dist.	1268 Aug 02 j 07:15	17° $\overline{0}$ 34'49	31.12147 AU
min. Earth dist.	1262 Jan 16 j 04:48	3° $\overline{0}$ 12'41	29.04789 AU	retrograde	1268 Nov 14 j 12:01	20° $\overline{0}$ 04'46	
asc. node	1262 Apr 03 j 00:34	1° $\overline{0}$ 48'18		opposition	1269 Jan 30 j 18:27	18° $\overline{0}$ 42'11	0°29'24
direct	1262 Apr 05 j 05:27	1° $\overline{0}$ 48'13		min. Earth dist.	1269 Jan 31 j 09:28	18° $\overline{0}$ 41'08	29.12604 AU
conjunction	1262 Jul 20 j 16:35	4° $\overline{0}$ 19'53	0°01'15	direct	1269 Apr 20 j 14:13	17° $\overline{0}$ 17'01	
minimum elong	1262 Jul 20 j 16:36	4° $\overline{0}$ 19'53	0°01'15	conjunction	1269 Aug 05 j 11:46	19° $\overline{0}$ 48'50	0°29'32
behind sun begin	1262 Jul 20 j 10:00	4° $\overline{0}$ 19'18		minimum elong	1269 Aug 05 j 11:46	19° $\overline{0}$ 48'50	0°29'31
behind sun end	1262 Jul 20 j 23:11	4° $\overline{0}$ 20'28		max. Earth dist.	1269 Aug 04 j 17:57	19° $\overline{0}$ 47'11	31.12997 AU
max. Earth dist.	1262 Jul 20 j 04:43	4° $\overline{0}$ 18'48	31.05304 AU	retrograde	1269 Nov 17 j 00:24	22° $\overline{0}$ 17'11	
retrograde	1262 Nov 01 j 21:46	6° $\overline{0}$ 49'10		opposition	1270 Feb 02 j 04:47	20° $\overline{0}$ 54'37	0°33'36
opposition	1263 Jan 18 j 04:31	5° $\overline{0}$ 26'04	0°03'28	min. Earth dist.	1270 Feb 02 j 19:57	20° $\overline{0}$ 53'34	29.13405 AU
min. Earth dist.	1263 Jan 18 j 14:15	5° $\overline{0}$ 25'23	29.05859 AU	direct	1270 Apr 23 j 03:22	19° $\overline{0}$ 29'25	
direct	1263 Apr 07 j 17:54	4° $\overline{0}$ 00'52		max. Earth dist.	1270 Aug 07 j 06:58	21° $\overline{0}$ 59'35	31.13740 AU
conjunction	1263 Jul 23 j 05:50	6° $\overline{0}$ 32'35	0°05'23	conjunction	1270 Aug 08 j 00:38	22° $\overline{0}$ 01'13	0°33'26
minimum elong	1263 Jul 23 j 05:49	6° $\overline{0}$ 32'35	0°05'22	minimum elong	1270 Aug 08 j 00:38	22° $\overline{0}$ 01'13	0°33'26
behind sun begin	1263 Jul 22 j 23:28	6° $\overline{0}$ 32'01		retrograde	1270 Nov 19 j 10:18	24° $\overline{0}$ 29'25	
behind sun end	1263 Jul 23 j 12:11	6° $\overline{0}$ 33'08		opposition	1271 Feb 04 j 15:08	23° $\overline{0}$ 06'52	0°37'44
max. Earth dist.	1263 Jul 22 j 17:40	6° $\overline{0}$ 31'28	31.06429 AU	min. Earth dist.	1271 Feb 05 j 07:57	23° $\overline{0}$ 05'42	29.14110 AU
retrograde	1263 Nov 04 j 07:39	9° $\overline{0}$ 01'43		direct	1271 Apr 25 j 16:13	21° $\overline{0}$ 41'38	
opposition	1264 Jan 20 j 14:49	7° $\overline{0}$ 38'43	0°07'50	conjunction	1271 Aug 10 j 13:14	24° $\overline{0}$ 13'24	0°37'17
min. Earth dist.	1264 Jan 21 j 02:01	7° $\overline{0}$ 37'56	29.07040 AU	minimum elong	1271 Aug 10 j 13:14	24° $\overline{0}$ 13'24	0°37'16
direct	1264 Apr 09 j 04:29	6° $\overline{0}$ 13'32		max. Earth dist.	1271 Aug 09 j 18:11	24° $\overline{0}$ 11'39	31.14421 AU
conjunction	1264 Jul 24 j 18:49	8° $\overline{0}$ 45'17	0°09'27	retrograde	1271 Nov 21 j 21:44	26° $\overline{0}$ 41'26	
minimum elong	1264 Jul 24 j 18:50	8° $\overline{0}$ 45'17	0°09'27	opposition	1272 Feb 07 j 01:26	25° $\overline{0}$ 18'55	0°41'49
behind sun begin	1264 Jul 24 j 13:23	8° $\overline{0}$ 44'48		min. Earth dist.	1272 Feb 07 j 17:49	25° $\overline{0}$ 17'47	29.14774 AU
behind sun end	1264 Jul 25 j 00:17	8° $\overline{0}$ 45'46		direct	1272 Apr 27 j 05:23	23° $\overline{0}$ 53'38	
max. Earth dist.	1264 Jul 24 j 06:10	8° $\overline{0}$ 44'07	31.07650 AU	max. Earth dist.	1272 Aug 11 j 06:25	26° $\overline{0}$ 23'37	31.15069 AU

conjunction	1272 Aug 12 j 01:37	26° Ω 25'23	0°41'04	conjunction	1280 Aug 30 j 01:39	13° $\mathring{\text{M}}$ 59'15	1°08'43
minimum elong	1272 Aug 12 j 01:37	26° Ω 25'23	0°41'04	minimum elong	1280 Aug 30 j 01:39	13° $\mathring{\text{M}}$ 59'15	1°08'43
retrograde	1272 Nov 23 j 07:25	28° Ω 53'17		retrograde	1280 Dec 10 j 18:50	16° $\mathring{\text{M}}$ 26'29	
opposition	1273 Feb 08 j 11:54	27° Ω 30'47	0°45'50	opposition	1281 Feb 25 j 23:57	15° $\mathring{\text{M}}$ 04'27	1°15'01
min. Earth dist.	1273 Feb 09 j 05:38	27° Ω 29'32	29.15445 AU	min. Earth dist.	1281 Feb 26 j 19:42	15° $\mathring{\text{M}}$ 03'05	29.22517 AU
direct	1273 Apr 29 j 16:50	26° Ω 05'28		direct	1281 May 17 j 14:49	13° $\mathring{\text{M}}$ 39'21	
conjunction	1273 Aug 14 j 13:53	28° Ω 37'11	0°44'48	conjunction	1281 Sep 01 j 13:27	16° $\mathring{\text{M}}$ 11'03	1°11'46
minimum elong	1273 Aug 14 j 13:53	28° Ω 37'11	0°44'47	minimum elong	1281 Sep 01 j 13:27	16° $\mathring{\text{M}}$ 11'03	1°11'46
max. Earth dist.	1273 Aug 13 j 18:23	28° Ω 35'23	31.15765 AU	max. Earth dist.	1281 Aug 31 j 14:52	16° $\mathring{\text{M}}$ 08'57	31.22763 AU
	1273 Sep 22 j 22:00	0° $\mathring{\text{M}}$		retrograde	1281 Dec 13 j 05:14	18° $\mathring{\text{M}}$ 38'12	
retrograde	1273 Nov 25 j 18:06	1° $\mathring{\text{M}}$ 04'56		opposition	1282 Feb 28 j 10:40	17° $\mathring{\text{M}}$ 16'11	1°18'13
	1274 Jan 31 j 09:05	30° $\mathring{\text{R}}$ Ω		min. Earth dist.	1282 Mar 01 j 07:55	17° $\mathring{\text{M}}$ 14'43	29.23130 AU
opposition	1274 Feb 10 j 22:07	29° Ω 42'28	0°49'47	direct	1282 May 20 j 02:58	15° $\mathring{\text{M}}$ 51'05	
min. Earth dist.	1274 Feb 11 j 15:22	29° Ω 41'16	29.16173 AU	max. Earth dist.	1282 Sep 03 j 02:04	18° $\mathring{\text{M}}$ 20'35	31.23314 AU
direct	1274 May 02 j 05:14	28° Ω 17'08					
	1274 Jul 25 j 18:20	0° $\mathring{\text{M}}$		conjunction	1282 Sep 04 j 01:08	18° $\mathring{\text{M}}$ 22'43	1°14'43
max. Earth dist.	1274 Aug 16 j 05:54	0° $\mathring{\text{M}}$ 46'58	31.16531 AU	minimum elong	1282 Sep 04 j 01:08	18° $\mathring{\text{M}}$ 22'43	1°14'43
conjunction	1274 Aug 17 j 02:04	0° $\mathring{\text{M}}$ 48'50	0°48'27	retrograde	1282 Dec 15 j 16:09	20° $\mathring{\text{M}}$ 49'46	
minimum elong	1274 Aug 17 j 02:04	0° $\mathring{\text{M}}$ 48'50	0°48'27	opposition	1283 Mar 02 j 21:24	19° $\mathring{\text{M}}$ 27'46	1°21'19
retrograde	1274 Nov 28 j 03:24	3° $\mathring{\text{M}}$ 16'29		min. Earth dist.	1283 Mar 03 j 18:20	19° $\mathring{\text{M}}$ 26'19	29.23617 AU
opposition	1275 Feb 13 j 08:34	1° $\mathring{\text{M}}$ 54'04	0°53'39	direct	1283 May 22 j 16:44	18° $\mathring{\text{M}}$ 02'38	
min. Earth dist.	1275 Feb 14 j 02:37	1° $\mathring{\text{M}}$ 52'48	29.17004 AU	conjunction	1283 Sep 06 j 12:37	20° $\mathring{\text{M}}$ 34'13	1°17'33
direct	1275 May 04 j 15:28	0° $\mathring{\text{M}}$ 28'45		minimum elong	1283 Sep 06 j 12:37	20° $\mathring{\text{M}}$ 34'13	1°17'33
conjunction	1275 Aug 19 j 14:14	3° $\mathring{\text{M}}$ 00'26	0°52'02	max. Earth dist.	1283 Sep 05 j 12:47	20° $\mathring{\text{M}}$ 32'00	31.23748 AU
minimum elong	1275 Aug 19 j 14:14	3° $\mathring{\text{M}}$ 00'26	0°52'02	retrograde	1283 Dec 18 j 00:58	23° $\mathring{\text{M}}$ 01'10	
max. Earth dist.	1275 Aug 18 j 18:38	2° $\mathring{\text{M}}$ 58'37	31.17409 AU	opposition	1284 Mar 04 j 08:12	21° $\mathring{\text{M}}$ 39'09	1°24'17
retrograde	1275 Nov 30 j 12:15	5° $\mathring{\text{M}}$ 27'59		min. Earth dist.	1284 Mar 05 j 06:01	21° $\mathring{\text{M}}$ 37'39	29.24029 AU
opposition	1276 Feb 15 j 18:59	4° $\mathring{\text{M}}$ 05'38	0°57'27	direct	1284 May 24 j 03:43	20° $\mathring{\text{M}}$ 14'00	
min. Earth dist.	1276 Feb 16 j 12:56	4° $\mathring{\text{M}}$ 04'23	29.17924 AU	max. Earth dist.	1284 Sep 07 j 00:49	22° $\mathring{\text{M}}$ 43'21	31.24134 AU
direct	1276 May 06 j 03:47	2° $\mathring{\text{M}}$ 40'21		conjunction	1284 Sep 08 j 00:01	22° $\mathring{\text{M}}$ 45'30	1°20'16
max. Earth dist.	1276 Aug 20 j 05:22	5° $\mathring{\text{M}}$ 10'08	31.18376 AU	minimum elong	1284 Sep 08 j 00:01	22° $\mathring{\text{M}}$ 45'30	1°20'16
conjunction	1276 Aug 21 j 02:11	5° $\mathring{\text{M}}$ 12'04	0°55'33	retrograde	1284 Dec 19 j 09:07	25° $\mathring{\text{M}}$ 12'20	
minimum elong	1276 Aug 21 j 02:11	5° $\mathring{\text{M}}$ 12'03	0°55'33	opposition	1285 Mar 06 j 18:59	23° $\mathring{\text{M}}$ 50'19	1°27'07
retrograde	1276 Dec 01 j 23:23	7° $\mathring{\text{M}}$ 39'33		min. Earth dist.	1285 Mar 07 j 16:44	23° $\mathring{\text{M}}$ 48'49	29.24402 AU
opposition	1277 Feb 17 j 05:25	6° $\mathring{\text{M}}$ 17'16	1°01'09	direct	1285 May 26 j 16:30	22° $\mathring{\text{M}}$ 25'08	
min. Earth dist.	1277 Feb 17 j 23:29	6° $\mathring{\text{M}}$ 16'01	29.18935 AU	max. Earth dist.	1285 Sep 09 j 10:51	24° $\mathring{\text{M}}$ 54'18	31.24510 AU
direct	1277 May 08 j 13:25	4° $\mathring{\text{M}}$ 52'02		conjunction	1285 Sep 10 j 11:03	24° $\mathring{\text{M}}$ 56'33	1°22'52
conjunction	1277 Aug 23 j 14:06	7° $\mathring{\text{M}}$ 23'45	0°58'59	minimum elong	1285 Sep 10 j 11:02	24° $\mathring{\text{M}}$ 56'33	1°22'52
minimum elong	1277 Aug 23 j 14:06	7° $\mathring{\text{M}}$ 23'45	0°58'59	retrograde	1285 Dec 21 j 19:29	27° $\mathring{\text{M}}$ 23'18	
max. Earth dist.	1277 Aug 22 j 18:05	7° $\mathring{\text{M}}$ 21'54	31.19394 AU	opposition	1286 Mar 09 j 05:44	26° $\mathring{\text{M}}$ 01'15	1°29'50
retrograde	1277 Dec 04 j 08:53	9° $\mathring{\text{M}}$ 51'11		min. Earth dist.	1286 Mar 10 j 03:16	25° $\mathring{\text{M}}$ 59'46	29.24809 AU
opposition	1278 Feb 19 j 16:00	8° $\mathring{\text{M}}$ 29'00	1°04'46	direct	1286 May 29 j 02:32	24° $\mathring{\text{M}}$ 36'03	
min. Earth dist.	1278 Feb 20 j 10:59	8° $\mathring{\text{M}}$ 27'41	29.19947 AU	conjunction	1286 Sep 12 j 22:12	27° $\mathring{\text{M}}$ 07'23	1°25'21
direct	1278 May 11 j 00:51	7° $\mathring{\text{M}}$ 03'49		minimum elong	1286 Sep 12 j 22:12	27° $\mathring{\text{M}}$ 07'23	1°25'21
max. Earth dist.	1278 Aug 25 j 04:24	9° $\mathring{\text{M}}$ 33'32	31.20389 AU	max. Earth dist.	1286 Sep 11 j 23:10	27° $\mathring{\text{M}}$ 05'14	31.24938 AU
conjunction	1278 Aug 26 j 01:59	9° $\mathring{\text{M}}$ 35'32	1°02'19	retrograde	1286 Dec 24 j 03:42	29° $\mathring{\text{M}}$ 34'04	
minimum elong	1278 Aug 26 j 01:59	9° $\mathring{\text{M}}$ 35'32	1°02'19	opposition	1287 Mar 11 j 16:32	28° $\mathring{\text{M}}$ 12'01	1°32'25
retrograde	1278 Dec 06 j 21:12	12° $\mathring{\text{M}}$ 02'55		min. Earth dist.	1287 Mar 12 j 14:29	28° $\mathring{\text{M}}$ 10'30	29.25280 AU
opposition	1279 Feb 22 j 02:26	10° $\mathring{\text{M}}$ 40'48	1°08'17	direct	1287 May 31 j 14:34	26° $\mathring{\text{M}}$ 46'48	
min. Earth dist.	1279 Feb 22 j 21:15	10° $\mathring{\text{M}}$ 39'30	29.20916 AU	max. Earth dist.	1287 Sep 14 j 09:14	29° $\mathring{\text{M}}$ 15'51	31.25464 AU
direct	1279 May 13 j 13:29	9° $\mathring{\text{M}}$ 15'39		conjunction	1287 Sep 15 j 09:06	29° $\mathring{\text{M}}$ 18'05	1°27'42
conjunction	1279 Aug 28 j 14:00	11° $\mathring{\text{M}}$ 47'24	1°05'34	minimum elong	1287 Sep 15 j 09:06	29° $\mathring{\text{M}}$ 18'05	1°27'42
minimum elong	1279 Aug 28 j 14:00	11° $\mathring{\text{M}}$ 47'24	1°05'34		1287 Oct 04 j 09:03	0° $\underline{\Omega}$	
max. Earth dist.	1279 Aug 27 j 16:51	11° $\mathring{\text{M}}$ 45'26	31.21298 AU	retrograde	1287 Dec 26 j 14:50	1° $\underline{\Omega}$ 44'42	
retrograde	1279 Dec 09 j 07:16	14° $\mathring{\text{M}}$ 14'42		opposition	1288 Mar 13 j 03:23	0° $\underline{\Omega}$ 22'40	1°34'53
opposition	1280 Feb 24 j 13:15	12° $\mathring{\text{M}}$ 52'38	1°11'43	min. Earth dist.	1288 Mar 14 j 00:20	0° $\underline{\Omega}$ 21'13	29.25868 AU
min. Earth dist.	1280 Feb 25 j 09:34	12° $\mathring{\text{M}}$ 51'14	29.21778 AU		1288 Mar 26 j 23:57	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$	
direct	1280 May 15 j 01:51	11° $\mathring{\text{M}}$ 27'31		direct	1288 Jun 02 j 02:05	28° $\mathring{\text{M}}$ 57'29	
max. Earth dist.	1280 Aug 29 j 03:19	13° $\mathring{\text{M}}$ 57'10	31.22100 AU		1288 Aug 05 j 08:50	0° $\underline{\Omega}$	
				conjunction	1288 Sep 16 j 19:56	1° $\underline{\Omega}$ 28'43	1°29'56

minimum elong	1288 Sep 16 j 19:55	1° <u>♂</u> 28'43	1°29'56	opposition	1297 Apr 02 j 08:10	20° <u>♂</u> 00'26	1°50'26
max. Earth dist.	1288 Sep 15 j 21:17	1° <u>♂</u> 26'36	31.26096 AU	min. Earth dist.	1297 Apr 03 j 05:19	19° <u>♂</u> 59'00	29.30173 AU
retrograde	1288 Dec 28 j 00:19	3° <u>♂</u> 55'19		direct	1297 Jun 22 j 12:01	18° <u>♂</u> 35'39	
opposition	1289 Mar 15 j 14:24	2° <u>♂</u> 33'18	1°37'11				
min. Earth dist.	1289 Mar 16 j 12:08	2° <u>♂</u> 31'48	29.26548 AU	conjunction	1297 Oct 06 j 19:13	21° <u>♂</u> 06'27	1°43'52
direct	1289 Jun 04 j 13:15	1° <u>♂</u> 08'11		minimum elong	1297 Oct 06 j 19:13	21° <u>♂</u> 06'27	1°43'51
max. Earth dist.	1289 Sep 18 j 07:37	3° <u>♂</u> 37'14	31.26814 AU	max. Earth dist.	1297 Oct 05 j 20:52	21° <u>♂</u> 04'21	31.30079 AU
				retrograde	1298 Jan 16 j 19:14	23° <u>♂</u> 33'00	
conjunction	1289 Sep 19 j 06:41	3° <u>♂</u> 39'23	1°32'02	opposition	1298 Apr 04 j 19:32	22° <u>♂</u> 11'07	1°51'24
minimum elong	1289 Sep 19 j 06:41	3° <u>♂</u> 39'23	1°32'02	min. Earth dist.	1298 Apr 05 j 17:29	22° <u>♂</u> 09'37	29.30234 AU
retrograde	1289 Dec 30 j 11:45	6° <u>♂</u> 05'58		direct	1298 Jun 24 j 22:38	20° <u>♂</u> 46'20	
opposition	1290 Mar 18 j 01:08	4° <u>♂</u> 44'00	1°39'22	max. Earth dist.	1298 Oct 08 j 06:53	23° <u>♂</u> 14'56	31.30154 AU
min. Earth dist.	1290 Mar 18 j 21:49	4° <u>♂</u> 42'35	29.27281 AU				
direct	1290 Jun 07 j 01:34	3° <u>♂</u> 18'56		conjunction	1298 Oct 09 j 05:19	23° <u>♂</u> 17'02	1°44'42
				minimum elong	1298 Oct 09 j 05:19	23° <u>♂</u> 17'02	1°44'42
conjunction	1290 Sep 21 j 17:33	5° <u>♂</u> 50'08	1°34'00	retrograde	1299 Jan 19 j 06:21	25° <u>♂</u> 43'35	
minimum elong	1290 Sep 21 j 17:33	5° <u>♂</u> 50'08	1°34'01	opposition	1299 Apr 07 j 06:59	24° <u>♂</u> 21'40	1°52'13
max. Earth dist.	1290 Sep 20 j 18:46	5° <u>♂</u> 48'01	31.27541 AU	min. Earth dist.	1299 Apr 08 j 03:24	24° <u>♂</u> 20'17	29.30330 AU
retrograde	1291 Jan 01 j 22:36	8° <u>♂</u> 16'43		direct	1299 Jun 27 j 11:15	22° <u>♂</u> 56'54	
opposition	1291 Mar 20 j 12:18	6° <u>♂</u> 54'49	1°41'24				
min. Earth dist.	1291 Mar 21 j 09:59	6° <u>♂</u> 53'19	29.28004 AU	conjunction	1299 Oct 11 j 15:17	25° <u>♂</u> 27'31	1°45'23
direct	1291 Jun 09 j 13:23	5° <u>♂</u> 29'49		minimum elong	1299 Oct 11 j 15:17	25° <u>♂</u> 27'31	1°45'22
max. Earth dist.	1291 Sep 23 j 05:33	7° <u>♂</u> 58'52	31.28236 AU	max. Earth dist.	1299 Oct 10 j 17:36	25° <u>♂</u> 25'29	31.30278 AU
				retrograde	1300 Jan 21 j 17:24	27° <u>♂</u> 54'05	
conjunction	1291 Sep 24 j 04:14	8° <u>♂</u> 00'59	1°35'50	opposition	1300 Apr 08 j 18:38	26° <u>♂</u> 32'09	1°52'51
minimum elong	1291 Sep 24 j 04:13	8° <u>♂</u> 00'59	1°35'50	min. Earth dist.	1300 Apr 09 j 15:21	26° <u>♂</u> 30'44	29.30508 AU
retrograde	1292 Jan 04 j 09:32	10° <u>♂</u> 27'34		direct	1300 Jun 28 j 23:24	25° <u>♂</u> 07'25	
opposition	1292 Mar 21 j 23:27	9° <u>♂</u> 05'43	1°43'17	max. Earth dist.	1300 Oct 12 j 04:23	27° <u>♂</u> 36'01	31.30508 AU
min. Earth dist.	1292 Mar 22 j 20:30	9° <u>♂</u> 04'16	29.28655 AU				
direct	1292 Jun 11 j 02:54	7° <u>♂</u> 40'47		conjunction	1300 Oct 13 j 01:15	27° <u>♂</u> 37'58	1°45'54
				minimum elong	1300 Oct 13 j 01:15	27° <u>♂</u> 37'58	1°45'55
conjunction	1292 Sep 25 j 14:56	10° <u>♂</u> 11'55	1°37'32				
minimum elong	1292 Sep 25 j 14:55	10° <u>♂</u> 11'55	1°37'32	retrograde	1301 Jan 06 j 19:36	0° <u>♂</u>	
max. Earth dist.	1292 Sep 24 j 15:42	10° <u>♂</u> 09'45	31.28833 AU		1301 Jan 23 j 04:16	0° <u>♂</u> 04'33	
retrograde	1293 Jan 05 j 19:24	12° <u>♂</u> 38'31			1301 Feb 08 j 14:47	30° <u>♂</u>	
opposition	1293 Mar 24 j 10:43	11° <u>♂</u> 16'41	1°45'01	opposition	1301 Apr 11 j 06:05	28° <u>♂</u> 42'37	1°53'21
min. Earth dist.	1293 Mar 25 j 08:23	11° <u>♂</u> 15'12	29.29215 AU	min. Earth dist.	1301 Apr 12 j 01:32	28° <u>♂</u> 41'17	29.30774 AU
direct	1293 Jun 13 j 13:29	9° <u>♂</u> 51'49		direct	1301 Jul 01 j 12:47	27° <u>♂</u> 17'56	
max. Earth dist.	1293 Sep 27 j 03:04	12° <u>♂</u> 20'49	31.29324 AU	conjunction	1301 Oct 15 j 11:07	29° <u>♂</u> 48'26	1°46'17
				minimum elong	1301 Oct 15 j 11:07	29° <u>♂</u> 48'26	1°46'17
conjunction	1293 Sep 28 j 01:35	12° <u>♂</u> 22'55	1°39'05	max. Earth dist.	1301 Oct 14 j 14:15	29° <u>♂</u> 46'29	31.30810 AU
minimum elong	1293 Sep 28 j 01:35	12° <u>♂</u> 22'55	1°39'05		1301 Oct 20 j 14:41	0° <u>♂</u>	
retrograde	1294 Jan 08 j 04:01	14° <u>♂</u> 49'30		retrograde	1302 Jan 25 j 14:25	2° <u>♂</u> 15'04	
opposition	1294 Mar 26 j 22:01	13° <u>♂</u> 27'42	1°46'36	opposition	1302 Apr 13 j 17:43	0° <u>♂</u> 53'09	1°53'40
min. Earth dist.	1294 Mar 27 j 19:42	13° <u>♂</u> 26'13	29.29629 AU	min. Earth dist.	1302 Apr 14 j 13:10	0° <u>♂</u> 51'50	29.31105 AU
direct	1294 Jun 16 j 02:21	12° <u>♂</u> 02'52			1302 May 18 j 21:45	30° <u>♂</u>	
				direct	1302 Jul 03 j 23:16	29° <u>♂</u> 28'32	
conjunction	1294 Sep 30 j 12:07	14° <u>♂</u> 33'55	1°40'30		1302 Aug 17 j 15:39	0° <u>♂</u>	
minimum elong	1294 Sep 30 j 12:07	14° <u>♂</u> 33'55	1°40'30				
max. Earth dist.	1294 Sep 29 j 12:27	14° <u>♂</u> 31'42	31.29669 AU	conjunction	1302 Oct 17 j 21:02	1° <u>♂</u> 58'59	1°46'30
retrograde	1295 Jan 10 j 14:53	17° <u>♂</u> 00'30		minimum elong	1302 Oct 17 j 21:02	1° <u>♂</u> 58'59	1°46'30
opposition	1295 Mar 29 j 09:18	15° <u>♂</u> 38'42	1°48'02	max. Earth dist.	1302 Oct 17 j 01:34	1° <u>♂</u> 57'10	31.31151 AU
min. Earth dist.	1295 Mar 30 j 06:48	15° <u>♂</u> 37'13	29.29917 AU	retrograde	1303 Jan 27 j 23:33	4° <u>♂</u> 25'40	
direct	1295 Jun 18 j 12:28	14° <u>♂</u> 13'53		opposition	1303 Apr 16 j 05:26	3° <u>♂</u> 03'46	1°53'49
				min. Earth dist.	1303 Apr 17 j 00:25	3° <u>♂</u> 02'29	29.31432 AU
conjunction	1295 Oct 02 j 22:44	16° <u>♂</u> 44'52	1°41'46	direct	1303 Jul 06 j 12:45	1° <u>♂</u> 39'15	
minimum elong	1295 Oct 02 j 22:44	16° <u>♂</u> 44'52	1°41'46	max. Earth dist.	1303 Oct 19 j 10:45	4° <u>♂</u> 07'45	31.31467 AU
max. Earth dist.	1295 Oct 02 j 00:06	16° <u>♂</u> 42'45	31.29891 AU				
retrograde	1296 Jan 12 j 23:14	19° <u>♂</u> 11'26		conjunction	1303 Oct 20 j 06:50	4° <u>♂</u> 09'38	1°46'34
opposition	1296 Mar 30 j 20:49	17° <u>♂</u> 49'38	1°49'19	minimum elong	1303 Oct 20 j 06:50	4° <u>♂</u> 09'38	1°46'34
min. Earth dist.	1296 Mar 31 j 18:54	17° <u>♂</u> 48'07	29.30081 AU	retrograde	1304 Jan 30 j 11:07	6° <u>♂</u> 36'22	
direct	1296 Jun 20 j 00:44	16° <u>♂</u> 24'50		opposition	1304 Apr 17 j 17:16	5° <u>♂</u> 14'30	1°53'48
max. Earth dist.	1296 Oct 03 j 09:24	18° <u>♂</u> 53'31	31.30016 AU	min. Earth dist.	1304 Apr 18 j 11:35	5° <u>♂</u> 13'15	29.31727 AU
				direct	1304 Jul 07 j 23:22	3° <u>♂</u> 50'02	
conjunction	1296 Oct 04 j 08:54	18° <u>♂</u> 55'43	1°42'53				
minimum elong	1296 Oct 04 j 08:54	18° <u>♂</u> 55'43	1°42'54	conjunction	1304 Oct 21 j 16:40	6° <u>♂</u> 20'22	1°46'29
retrograde	1297 Jan 14 j 10:04	21° <u>♂</u> 22'17		minimum elong	1304 Oct 21 j 16:40	6° <u>♂</u> 20'22	1°46'29

max. Earth dist.	1304 Oct 20 j 21:58	6°M18'37	31.31713 AU	conjunction	1312 Nov 07 j 21:32	23°M45'19	1°40'24
retrograde	1305 Jan 31 j 19:29	8°M47'10		minimum elong	1312 Nov 07 j 21:32	23°M45'19	1°40'24
opposition	1305 Apr 20 j 05:15	7°M25'18	1°53'38	max. Earth dist.	1312 Nov 07 j 05:44	23°M43'49	31.29606 AU
min. Earth dist.	1305 Apr 20 j 23:59	7°M24'01	29.31914 AU	retrograde	1313 Feb 18 j 08:55	26°M12'34	
direct	1305 Jul 10 j 11:34	6°M00'54		opposition	1313 May 08 j 06:06	24°M50'20	1°46'31
max. Earth dist.	1305 Oct 23 j 07:01	8°M29'20	31.31843 AU	min. Earth dist.	1313 May 08 j 20:12	24°M49'23	29.29556 AU
				direct	1313 Jul 28 j 10:03	23°M26'08	
conjunction	1305 Oct 24 j 02:29	8°M31'10	1°46'15				
minimum elong	1305 Oct 24 j 02:29	8°M31'10	1°46'14	conjunction	1313 Nov 10 j 06:57	25°M55'43	1°38'59
retrograde	1306 Feb 03 j 06:16	10°M58'00		minimum elong	1313 Nov 10 j 06:58	25°M55'43	1°38'58
opposition	1306 Apr 22 j 17:03	9°M36'08	1°53'18	max. Earth dist.	1313 Nov 09 j 17:00	25°M54'24	31.29313 AU
min. Earth dist.	1306 Apr 23 j 10:47	9°M34'56	29.31973 AU	retrograde	1314 Feb 20 j 17:19	28°M23'04	
direct	1306 Jul 12 j 22:16	8°M11'46		opposition	1314 May 10 j 18:19	27°M00'50	1°44'56
				min. Earth dist.	1314 May 11 j 08:13	26°M59'54	29.29289 AU
conjunction	1306 Oct 26 j 12:27	10°M41'58	1°45'51	direct	1314 Jul 30 j 22:07	25°M36'42	
minimum elong	1306 Oct 26 j 12:27	10°M41'58	1°45'52				
max. Earth dist.	1306 Oct 25 j 17:57	10°M40'14	31.31819 AU	conjunction	1314 Nov 12 j 16:13	28°M06'14	1°37'25
retrograde	1307 Feb 05 j 15:58	13°M08'53		minimum elong	1314 Nov 12 j 16:13	28°M06'14	1°37'26
opposition	1307 Apr 25 j 05:15	11°M46'58	1°52'48	max. Earth dist.	1314 Nov 12 j 02:15	28°M04'55	31.29089 AU
min. Earth dist.	1307 Apr 25 j 23:49	11°M45'43	29.31873 AU		1315 Jan 09 j 00:14	0° 2	
direct	1307 Jul 15 j 08:47	10°M22'39		retrograde	1315 Feb 23 j 04:17	0° 2 33'43	
					1315 Apr 11 j 07:42	30°RM	
conjunction	1307 Oct 28 j 22:08	12°M52'45	1°45'19	opposition	1315 May 13 j 06:38	29°M11'29	1°43'11
minimum elong	1307 Oct 28 j 22:09	12°M52'45	1°45'18	min. Earth dist.	1315 May 13 j 18:53	29°M10'39	29.29077 AU
max. Earth dist.	1307 Oct 28 j 03:32	12°M51'00	31.31650 AU	direct	1315 Aug 02 j 08:31	27°M47'25	
	1308 Jan 04 j 22:37	15°M			1315 Nov 07 j 13:37	0° 2	
retrograde	1308 Feb 08 j 03:14	15°M19'43					
	1308 Mar 14 j 08:38	15°RM		conjunction	1315 Nov 15 j 01:29	0° 2 16'55	1°35'43
opposition	1308 Apr 26 j 17:20	13°M57'46	1°52'09	minimum elong	1315 Nov 15 j 01:29	0° 2 16'55	1°35'43
min. Earth dist.	1308 Apr 27 j 10:32	13°M56'36	29.31621 AU	max. Earth dist.	1315 Nov 14 j 13:01	0° 2 15'45	31.28880 AU
direct	1308 Jul 16 j 21:23	12°M33'27		retrograde	1316 Feb 25 j 14:24	2° 2 44'32	
	1308 Oct 28 j 18:58	15°M		opposition	1316 May 14 j 19:12	1° 2 22'18	1°41'17
				min. Earth dist.	1316 May 15 j 07:46	1° 2 21'27	29.28861 AU
conjunction	1308 Oct 30 j 07:53	15°M03'28	1°44'37		1316 Jul 24 j 12:34	30°RM	
minimum elong	1308 Oct 30 j 07:53	15°M03'28	1°44'38	direct	1316 Aug 03 j 18:17	29°M58'19	
max. Earth dist.	1308 Oct 29 j 13:35	15°M01'45	31.31328 AU		1316 Aug 13 j 23:45	0° 2	
retrograde	1309 Feb 09 j 14:27	17°M30'28					
opposition	1309 Apr 29 j 05:25	16°M08'28	1°51'20	conjunction	1316 Nov 16 j 10:49	2° 2 27'45	1°33'52
min. Earth dist.	1309 Apr 29 j 23:13	16°M07'15	29.31246 AU	minimum elong	1316 Nov 16 j 10:49	2° 2 27'45	1°33'53
	1309 Jun 17 j 07:33	15°RM		max. Earth dist.	1316 Nov 15 j 22:46	2° 2 26'37	31.28655 AU
direct	1309 Jul 19 j 08:53	14°M44'10		retrograde	1317 Feb 27 j 02:00	4° 2 55'30	
	1309 Aug 19 j 19:27	15°M		opposition	1317 May 17 j 07:29	3° 2 33'16	1°39'15
				min. Earth dist.	1317 May 17 j 18:26	3° 2 32'31	29.28597 AU
conjunction	1309 Nov 01 j 17:30	17°M14'04	1°43'47	direct	1317 Aug 06 j 06:09	2° 2 09'21	
minimum elong	1309 Nov 01 j 17:30	17°M14'04	1°43'47				
max. Earth dist.	1309 Nov 01 j 00:00	17°M12'26	31.30912 AU	conjunction	1317 Nov 18 j 20:12	4° 2 38'45	1°31'53
retrograde	1310 Feb 12 j 01:09	19°M41'07		minimum elong	1317 Nov 18 j 20:12	4° 2 38'45	1°31'53
opposition	1310 May 01 j 17:30	18°M19'02	1°50'22	max. Earth dist.	1317 Nov 18 j 08:33	4° 2 37'39	31.28345 AU
min. Earth dist.	1310 May 02 j 10:06	18°M17'55	29.30782 AU	retrograde	1318 Mar 01 j 14:08	7° 2 06'38	
direct	1310 Jul 21 j 22:18	16°M54'44		opposition	1318 May 19 j 20:08	5° 2 44'21	1°37'03
max. Earth dist.	1310 Nov 03 j 09:24	19°M22'55	31.30433 AU	min. Earth dist.	1318 May 20 j 07:28	5° 2 43'35	29.28238 AU
				direct	1318 Aug 08 j 16:34	4° 2 20'30	
conjunction	1310 Nov 04 j 02:53	19°M24'34	1°42'48				
minimum elong	1310 Nov 04 j 02:53	19°M24'34	1°42'48	conjunction	1318 Nov 21 j 05:34	6° 2 49'50	1°29'47
retrograde	1311 Feb 14 j 11:46	21°M51'40		minimum elong	1318 Nov 21 j 05:35	6° 2 49'50	1°29'47
opposition	1311 May 04 j 05:42	20°M29'31	1°49'14	max. Earth dist.	1318 Nov 20 j 18:57	6° 2 48'50	31.27931 AU
min. Earth dist.	1311 May 04 j 22:02	20°M28'24	29.30313 AU	retrograde	1319 Mar 04 j 01:26	9° 2 17'50	
direct	1311 Jul 24 j 09:18	19°M05'14		opposition	1319 May 22 j 08:47	7° 2 55'31	1°34'44
				min. Earth dist.	1319 May 22 j 18:51	7° 2 54'51	29.27745 AU
conjunction	1311 Nov 06 j 12:21	21°M34'57	1°41'41	direct	1319 Aug 11 j 04:54	6° 2 31'43	
minimum elong	1311 Nov 06 j 12:21	21°M34'57	1°41'40				
max. Earth dist.	1311 Nov 05 j 20:42	21°M33'29	31.29983 AU	conjunction	1319 Nov 23 j 14:57	9° 2 00'59	1°27'32
retrograde	1312 Feb 16 j 21:08	24°M02'07		minimum elong	1319 Nov 23 j 14:58	9° 2 00'59	1°27'32
opposition	1312 May 05 j 17:56	22°M39'55	1°47'57	max. Earth dist.	1319 Nov 23 j 04:04	8° 2 59'58	31.27374 AU
min. Earth dist.	1312 May 06 j 09:18	22°M38'53	29.29888 AU	retrograde	1320 Mar 05 j 13:21	11° 2 29'06	
direct	1312 Jul 25 j 23:07	21°M15'40		opposition	1320 May 23 j 21:31	10° 2 06'43	1°32'16
				min. Earth dist.	1320 May 24 j 07:30	10° 2 06'03	29.27126 AU

direct	1320 Aug 12 j 15:58	8° \nearrow 42'56		minimum elong	1328 Dec 12 j 01:53	28° \nearrow 38'51	1°02'13
				max. Earth dist.	1328 Dec 11 j 23:09	28° \nearrow 38'36	31.20983 AU
conjunction	1320 Nov 25 j 00:23	11° \nearrow 12'07	1°25'10		1329 Jan 18 j 19:17	0° \searrow	
minimum elong	1320 Nov 25 j 00:24	11° \nearrow 12'07	1°25'11	retrograde	1329 Mar 25 j 17:18	1° \searrow 08'03	
max. Earth dist.	1320 Nov 24 j 15:02	11° \nearrow 11'14	31.26686 AU		1329 Jun 04 j 10:11	30° \nwarrow	
retrograde	1321 Mar 08 j 00:06	13° \nearrow 40'19		opposition	1329 Jun 13 j 16:10	29° \nearrow 45'06	1°04'41
opposition	1321 May 26 j 10:13	12° \nearrow 17'52	1°29'41	min. Earth dist.	1329 Jun 13 j 17:52	29° \nearrow 44'59	29.20768 AU
min. Earth dist.	1321 May 26 j 19:35	12° \nearrow 17'14	29.26357 AU	direct	1329 Sep 01 j 23:51	28° \nearrow 21'34	
direct	1321 Aug 15 j 06:15	10° \nearrow 54'05			1329 Nov 21 j 23:31	0° \searrow	
conjunction	1321 Nov 27 j 09:39	13° \nearrow 23'10	1°22'41	conjunction	1329 Dec 14 j 11:16	0° \searrow 50'08	0°58'52
minimum elong	1321 Nov 27 j 09:39	13° \nearrow 23'10	1°22'41	minimum elong	1329 Dec 14 j 11:17	0° \searrow 50'08	0°58'51
max. Earth dist.	1321 Nov 26 j 23:49	13° \nearrow 22'15	31.25872 AU	max. Earth dist.	1329 Dec 14 j 10:25	0° \searrow 50'03	31.20467 AU
retrograde	1322 Mar 10 j 12:15	15° \nearrow 51'27		retrograde	1330 Mar 28 j 05:09	3° \searrow 19'29	
opposition	1322 May 28 j 22:47	14° \nearrow 28'54	1°26'58	opposition	1330 Jun 16 j 05:06	1° \searrow 56'32	1°01'05
min. Earth dist.	1322 May 29 j 07:10	14° \nearrow 28'20	29.25500 AU	min. Earth dist.	1330 Jun 16 j 06:00	1° \searrow 56'28	29.20214 AU
direct	1322 Aug 17 j 17:48	13° \nearrow 05'06		direct	1330 Sep 04 j 12:59	0° \searrow 33'04	
conjunction	1322 Nov 29 j 19:00	15° \nearrow 34'05	1°20'05	conjunction	1330 Dec 16 j 20:38	3° \searrow 01'37	0°55'27
minimum elong	1322 Nov 29 j 19:01	15° \nearrow 34'05	1°20'06	minimum elong	1330 Dec 16 j 20:38	3° \searrow 01'37	0°55'27
max. Earth dist.	1322 Nov 29 j 10:57	15° \nearrow 33'20	31.24990 AU	max. Earth dist.	1330 Dec 16 j 19:25	3° \searrow 01'30	31.19889 AU
retrograde	1323 Mar 12 j 20:54	18° \nearrow 02'27		retrograde	1331 Mar 30 j 18:45	5° \searrow 31'09	
opposition	1323 May 31 j 11:36	16° \nearrow 39'48	1°24'08	opposition	1331 Jun 18 j 18:12	4° \searrow 08'09	0°57'22
min. Earth dist.	1323 May 31 j 19:43	16° \nearrow 39'15	29.24605 AU	min. Earth dist.	1331 Jun 18 j 18:03	4° \searrow 08'10	29.19592 AU
direct	1323 Aug 20 j 06:37	15° \nearrow 15'59		direct	1331 Sep 06 j 23:47	2° \searrow 44'46	
conjunction	1323 Dec 02 j 04:01	17° \nearrow 44'52	1°17'23	conjunction	1331 Dec 19 j 06:09	5° \searrow 13'17	0°51'57
minimum elong	1323 Dec 02 j 04:01	17° \nearrow 44'52	1°17'22	minimum elong	1331 Dec 19 j 06:09	5° \searrow 13'17	0°51'56
max. Earth dist.	1323 Dec 01 j 20:13	17° \nearrow 44'07	31.24120 AU	max. Earth dist.	1331 Dec 19 j 06:29	5° \searrow 13'19	31.19204 AU
retrograde	1324 Mar 14 j 07:47	20° \nearrow 13'19		retrograde	1332 Apr 01 j 04:56	7° \searrow 42'59	
opposition	1324 Jun 02 j 00:16	18° \nearrow 50'34	1°21'11	opposition	1332 Jun 20 j 07:24	6° \searrow 19'57	0°53'35
min. Earth dist.	1324 Jun 02 j 06:29	18° \nearrow 50'09	29.23759 AU	min. Earth dist.	1332 Jun 20 j 07:15	6° \searrow 19'58	29.18838 AU
direct	1324 Aug 21 j 18:19	17° \nearrow 26'45		direct	1332 Sep 08 j 12:27	4° \searrow 56'36	
conjunction	1324 Dec 03 j 13:16	19° \nearrow 55'32	1°14'33	conjunction	1332 Dec 20 j 15:44	7° \searrow 25'05	0°48'22
minimum elong	1324 Dec 03 j 13:16	19° \nearrow 55'32	1°14'34	minimum elong	1332 Dec 20 j 15:44	7° \searrow 25'05	0°48'23
max. Earth dist.	1324 Dec 03 j 07:02	19° \nearrow 54'57	31.23308 AU	max. Earth dist.	1332 Dec 20 j 15:54	7° \searrow 25'06	31.18395 AU
retrograde	1325 Mar 16 j 17:48	22° \nearrow 24'06		retrograde	1333 Apr 03 j 17:08	9° \searrow 54'56	
opposition	1325 Jun 04 j 12:54	21° \nearrow 01'17	1°18'06	opposition	1333 Jun 22 j 20:19	8° \searrow 31'50	0°49'43
min. Earth dist.	1325 Jun 04 j 19:06	21° \nearrow 00'52	29.22998 AU	min. Earth dist.	1333 Jun 22 j 18:46	8° \searrow 31'57	29.17955 AU
direct	1325 Aug 24 j 05:01	19° \nearrow 37'30		direct	1333 Sep 11 j 00:29	7° \searrow 08'31	
conjunction	1325 Dec 05 j 22:26	22° \nearrow 06'12	1°11'38	conjunction	1333 Dec 23 j 01:23	9° \searrow 36'56	0°44'43
minimum elong	1325 Dec 05 j 22:26	22° \nearrow 06'12	1°11'37	minimum elong	1333 Dec 23 j 01:23	9° \searrow 36'56	0°44'43
max. Earth dist.	1325 Dec 05 j 17:10	22° \nearrow 05'42	31.22610 AU	max. Earth dist.	1333 Dec 23 j 02:31	9° \searrow 37'03	31.17443 AU
retrograde	1326 Mar 19 j 04:53	24° \nearrow 34'53		retrograde	1334 Apr 06 j 04:05	12° \searrow 06'56	
opposition	1326 Jun 07 j 01:33	23° \nearrow 12'01	1°14'55	opposition	1334 Jun 25 j 09:33	10° \searrow 43'45	0°45'47
min. Earth dist.	1326 Jun 07 j 05:32	23° \nearrow 11'45	29.22341 AU	min. Earth dist.	1334 Jun 25 j 08:24	10° \searrow 43'50	29.16947 AU
direct	1326 Aug 26 j 16:34	21° \nearrow 48'17		direct	1334 Sep 13 j 11:54	9° \searrow 20'26	
conjunction	1326 Dec 08 j 07:29	24° \nearrow 16'56	1°08'35	conjunction	1334 Dec 25 j 10:50	11° \searrow 48'47	0°41'00
minimum elong	1326 Dec 08 j 07:29	24° \nearrow 16'56	1°08'36	minimum elong	1334 Dec 25 j 10:50	11° \searrow 48'47	0°41'01
max. Earth dist.	1326 Dec 08 j 03:01	24° \nearrow 16'30	31.22002 AU	max. Earth dist.	1334 Dec 25 j 12:48	11° \searrow 48'58	31.16404 AU
retrograde	1327 Mar 21 j 16:46	26° \nearrow 45'47		retrograde	1335 Apr 08 j 14:59	14° \searrow 18'54	
opposition	1327 Jun 09 j 14:29	25° \nearrow 22'52	1°11'37	opposition	1335 Jun 27 j 22:38	12° \searrow 55'38	0°41'47
min. Earth dist.	1327 Jun 09 j 18:15	25° \nearrow 22'37	29.21778 AU	min. Earth dist.	1335 Jun 27 j 19:35	12° \searrow 55'50	29.15872 AU
direct	1327 Aug 29 j 02:11	23° \nearrow 59'11		direct	1335 Sep 15 j 23:59	11° \searrow 32'18	
conjunction	1327 Dec 10 j 16:44	26° \nearrow 27'48	1°05'27	conjunction	1335 Dec 27 j 20:19	14° \searrow 00'34	0°37'14
minimum elong	1327 Dec 10 j 16:44	26° \nearrow 27'48	1°05'27	minimum elong	1335 Dec 27 j 20:19	14° \searrow 00'34	0°37'14
max. Earth dist.	1327 Dec 10 j 13:56	26° \nearrow 27'32	31.21481 AU	max. Earth dist.	1335 Dec 27 j 22:46	14° \searrow 00'48	31.15320 AU
retrograde	1328 Mar 23 j 04:18	28° \nearrow 56'48		retrograde	1336 Apr 10 j 02:27	16° \searrow 30'50	
opposition	1328 Jun 11 j 03:14	27° \nearrow 33'53	1°08'12	opposition	1336 Jun 29 j 11:43	15° \searrow 07'27	0°37'44
min. Earth dist.	1328 Jun 11 j 05:19	27° \nearrow 33'44	29.21266 AU	min. Earth dist.	1336 Jun 29 j 08:39	15° \searrow 07'39	29.14806 AU
direct	1328 Aug 30 j 13:32	26° \nearrow 10'16		direct	1336 Sep 17 j 09:34	13° \searrow 44'07	
conjunction	1328 Dec 12 j 01:53	28° \nearrow 38'51	1°02'12	conjunction	1336 Dec 29 j 05:53	16° \searrow 12'19	0°33'25

minimum elong	1336 Dec 29 j 05:53	16°  12'19	0°33'25	retrograde	1344 Apr 28 j 06:03	4°  08'25	
max. Earth dist.	1336 Dec 29 j 10:04	16°  12'42	31.14279 AU	opposition	1344 Jul 17 j 20:31	2°  44'36	0°03'38
retrograde	1337 Apr 12 j 13:48	18°  42'42		min. Earth dist.	1344 Jul 17 j 09:32	2°  45'21	29.08378 AU
opposition	1337 Jul 02 j 00:41	17°  19'14	0°33'37	direct	1344 Oct 05 j 05:40	1°  21'32	
min. Earth dist.	1337 Jul 01 j 19:48	17°  19'34	29.13792 AU				
direct	1337 Sep 19 j 20:55	15°  55'54		conjunction	1345 Jan 15 j 12:17	3°  49'33	0°01'26
				minimum elong	1345 Jan 15 j 12:17	3°  49'33	0°01'27
conjunction	1337 Dec 31 j 15:17	18°  24'02	0°29'32	behind sun begin	1345 Jan 15 j 05:53	3°  48'59	
minimum elong	1337 Dec 31 j 15:17	18°  24'02	0°29'31	behind sun end	1345 Jan 15 j 18:41	3°  50'08	
max. Earth dist.	1337 Dec 31 j 19:38	18°  24'27	31.13311 AU	max. Earth dist.	1345 Jan 15 j 22:27	3°  50'30	31.07903 AU
retrograde	1338 Apr 15 j 02:56	20°  54'35		retrograde	1345 Apr 30 j 18:09	6°  21'16	
opposition	1338 Jul 04 j 13:46	19°  31'02	0°29'27	desc. node	1345 May 19 j 23:22	6°  15'24	
min. Earth dist.	1338 Jul 04 j 08:14	19°  31'25	29.12881 AU	opposition	1345 Jul 20 j 09:53	4°  57'23	0°00'-43
direct	1338 Sep 22 j 07:21	18°  07'43		min. Earth dist.	1345 Jul 19 j 23:22	4°  58'06	29.07415 AU
				direct	1345 Oct 07 j 15:48	3°  34'20	
conjunction	1339 Jan 03 j 00:58	20°  35'50	0°25'37	conjunction	1346 Jan 17 j 22:32	6°  02'19	0°-2'-45
minimum elong	1339 Jan 03 j 00:58	20°  35'50	0°25'37	minimum elong	1346 Jan 17 j 22:33	6°  02'19	0°02'47
max. Earth dist.	1339 Jan 03 j 07:29	20°  36'26	31.12451 AU	behind sun begin	1346 Jan 17 j 16:10	6°  01'44	
retrograde	1339 Apr 17 j 15:23	23°  06'31		behind sun end	1346 Jan 18 j 04:57	6°  02'54	
opposition	1339 Jul 07 j 02:51	21°  42'55	0°25'14	max. Earth dist.	1346 Jan 18 j 09:59	6°  03'23	31.06872 AU
min. Earth dist.	1339 Jul 06 j 20:08	21°  43'22	29.12064 AU	retrograde	1346 May 03 j 06:00	8°  34'10	
direct	1339 Sep 24 j 19:36	20°  19'38		opposition	1346 Jul 22 j 23:07	7°  10'12	0°-5'-5
				min. Earth dist.	1346 Jul 22 j 11:17	7°  11'01	29.06311 AU
conjunction	1340 Jan 05 j 10:29	22°  47'43	0°21'39	direct	1346 Oct 10 j 03:48	5°  47'09	
minimum elong	1340 Jan 05 j 10:29	22°  47'43	0°21'39				
max. Earth dist.	1340 Jan 05 j 17:00	22°  48'19	31.11687 AU	conjunction	1347 Jan 20 j 08:48	8°  15'05	0°-6'-50
retrograde	1340 Apr 19 j 05:00	25°  18'34		minimum elong	1347 Jan 20 j 08:47	8°  15'05	0°06'50
opposition	1340 Jul 08 j 15:56	23°  54'55	0°20'58	behind sun begin	1347 Jan 20 j 02:48	8°  14'33	
min. Earth dist.	1340 Jul 08 j 07:55	23°  55'28	29.11337 AU	behind sun end	1347 Jan 20 j 14:46	8°  15'38	
direct	1340 Sep 26 j 05:39	22°  31'41		max. Earth dist.	1347 Jan 20 j 19:48	8°  16'07	31.05720 AU
				retrograde	1347 May 05 j 19:16	10°  47'05	
conjunction	1341 Jan 06 j 20:17	24°  59'45	0°17'39	opposition	1347 Jul 25 j 12:25	9°  23'01	0°-9'-26
minimum elong	1341 Jan 06 j 20:17	24°  59'45	0°17'40	min. Earth dist.	1347 Jul 25 j 00:33	9°  23'49	29.05126 AU
max. Earth dist.	1341 Jan 07 j 04:33	25°  00'31	31.10978 AU	direct	1347 Oct 12 j 14:09	7°  59'56	
retrograde	1341 Apr 21 j 16:28	27°  30'46					
opposition	1341 Jul 11 j 04:56	26°  07'05	0°16'40	conjunction	1348 Jan 22 j 19:07	10°  27'50	0°-10'-53
min. Earth dist.	1341 Jul 10 j 20:41	26°  07'38	29.10640 AU	minimum elong	1348 Jan 22 j 19:07	10°  27'50	0°10'54
direct	1341 Sep 28 j 18:10	24°  43'54		behind sun begin	1348 Jan 22 j 14:13	10°  27'23	
				behind sun end	1348 Jan 23 j 00:02	10°  28'17	
conjunction	1342 Jan 09 j 06:06	27°  11'57	0°13'38	max. Earth dist.	1348 Jan 23 j 07:55	10°  29'02	31.04504 AU
minimum elong	1342 Jan 09 j 06:06	27°  11'57	0°13'37	retrograde	1348 May 07 j 07:28	12°  59'56	
behind sun begin	1342 Jan 09 j 02:29	27°  11'37		opposition	1348 Jul 27 j 01:33	11°  35'46	0°-13'-47
behind sun end	1342 Jan 09 j 09:42	27°  12'17		min. Earth dist.	1348 Jul 26 j 12:53	11°  36'38	29.03896 AU
max. Earth dist.	1342 Jan 09 j 14:36	27°  12'45	31.10298 AU	direct	1348 Oct 14 j 02:17	10°  12'39	
retrograde	1342 Apr 24 j 06:24	29°  43'08					
opposition	1342 Jul 13 j 18:05	28°  19'25	0°12'21	conjunction	1349 Jan 24 j 05:22	12°  40'32	0°-14'-55
min. Earth dist.	1342 Jul 13 j 08:14	28°  20'05	29.09952 AU	minimum elong	1349 Jan 24 j 05:22	12°  40'32	0°14'56
direct	1342 Oct 01 j 06:19	26°  56'17		behind sun begin	1349 Jan 24 j 02:47	12°  40'18	
				behind sun end	1349 Jan 24 j 07:57	12°  40'46	
conjunction	1343 Jan 11 j 15:57	29°  24'20	0°09'35	max. Earth dist.	1349 Jan 24 j 17:55	12°  41'43	31.03288 AU
minimum elong	1343 Jan 11 j 15:57	29°  24'20	0°09'36		1349 Apr 11 j 20:25	15° 	
behind sun begin	1343 Jan 11 j 10:37	29°  23'51		retrograde	1349 May 09 j 21:07	15°  12'46	
behind sun end	1343 Jan 11 j 21:17	29°  24'49			1349 Jun 07 j 10:31	15° 	
max. Earth dist.	1343 Jan 12 j 01:31	29°  25'13	31.09582 AU	opposition	1349 Jul 29 j 14:31	13°  48'30	0°-18'-6
	1343 Jan 27 j 10:59	0° 		min. Earth dist.	1349 Jul 29 j 00:50	13°  49'26	29.02713 AU
retrograde	1343 Apr 26 j 18:15	1°  55'42		direct	1349 Oct 16 j 12:19	12°  25'22	
opposition	1343 Jul 16 j 07:27	0°  31'56	0°08'00				
min. Earth dist.	1343 Jul 15 j 22:00	0°  32'35	29.09211 AU	conjunction	1350 Jan 26 j 15:46	14°  53'14	0°-18'-56
	1343 Aug 05 j 09:54	30° 		minimum elong	1350 Jan 26 j 15:46	14°  53'14	0°18'58
direct	1343 Oct 03 j 17:42	29°  08'51		max. Earth dist.	1350 Jan 27 j 06:00	14°  54'34	31.02132 AU
	1343 Nov 28 j 18:28	0° 			1350 Jan 29 j 15:10	15° 	
conjunction	1344 Jan 14 j 02:07	1°  36'53	0°05'32	retrograde	1350 May 12 j 09:21	17°  25'36	
minimum elong	1344 Jan 14 j 02:06	1°  36'53	0°05'32	opposition	1350 Aug 01 j 03:39	16°  01'15	0°-22'-24
behind sun begin	1344 Jan 13 j 19:56	1° 36'19		min. Earth dist.	1350 Jul 31 j 13:32	16° 02'13	29.01610 AU
behind sun end	1344 Jan 14 j 08:16	1° 37'26			1350 Sep 12 j 00:15	15°	
max. Earth dist.	1344 Jan 14 j 12:23	1° 37'50	31.08806 AU	direct	1350 Oct 19 j 00:56	14° 38'07	

	1350 Nov 24 j 00:06	15° \approx		direct	1358 Nov 05 j 17:23	2° \approx 25'36	
conjunction	1351 Jan 29 j 02:02	17° \approx 05'58	0°-22'-57	conjunction	1359 Feb 15 j 17:06	4° \approx 53'37	0°-53'-22
minimum elong	1351 Jan 29 j 02:01	17° \approx 05'58	0°22'57	minimum elong	1359 Feb 15 j 17:06	4° \approx 53'37	0°53'22
max. Earth dist.	1351 Jan 29 j 16:42	17° \approx 07'21	31.01093 AU	max. Earth dist.	1359 Feb 16 j 12:41	4° \approx 55'28	30.94554 AU
retrograde	1351 May 15 j 00:08	19° \approx 38'30		retrograde	1359 Jun 02 j 05:42	7° \approx 27'19	
opposition	1351 Aug 03 j 16:40	18° \approx 14'05	0°-26'-40	min. Earth dist.	1359 Aug 21 j 06:01	6° \approx 03'49	28.94084 AU
min. Earth dist.	1351 Aug 03 j 00:50	18° \approx 15'09	29.00631 AU	opposition	1359 Aug 22 j 00:45	6° \approx 02'31	0°-58'-58
direct	1351 Oct 21 j 13:08	16° \approx 50'57		direct	1359 Nov 08 j 06:08	4° \approx 39'29	
conjunction	1352 Jan 31 j 12:32	19° \approx 18'49	0°-26'-55	conjunction	1360 Feb 18 j 04:29	7° \approx 07'28	0°-56'-52
minimum elong	1352 Jan 31 j 12:32	19° \approx 18'49	0°26'56	minimum elong	1360 Feb 18 j 04:29	7° \approx 07'28	0°56'53
max. Earth dist.	1352 Feb 01 j 04:19	19° \approx 20'19	31.00158 AU	max. Earth dist.	1360 Feb 18 j 23:51	7° \approx 09'18	30.93520 AU
retrograde	1352 May 16 j 12:13	21° \approx 51'30		retrograde	1360 Jun 03 j 20:30	9° \approx 41'14	
opposition	1352 Aug 05 j 05:37	20° \approx 27'02	0°-30'-54	opposition	1360 Aug 23 j 13:27	8° \approx 16'21	-1°-2'-40
min. Earth dist.	1352 Aug 04 j 14:01	20° \approx 28'06	28.99758 AU	min. Earth dist.	1360 Aug 22 j 17:41	8° \approx 17'43	28.93038 AU
direct	1352 Oct 23 j 00:17	19° \approx 03'56		direct	1360 Nov 09 j 18:12	6° \approx 53'15	
conjunction	1353 Feb 01 j 23:08	21° \approx 31'49	0°-30'-51	conjunction	1361 Feb 19 j 15:51	9° \approx 21'14	-1°00'-17
minimum elong	1353 Feb 01 j 23:08	21° \approx 31'49	0°30'51	minimum elong	1361 Feb 19 j 15:51	9° \approx 21'14	1°00'18
max. Earth dist.	1353 Feb 02 j 15:55	21° \approx 33'25	30.99340 AU	max. Earth dist.	1361 Feb 20 j 11:52	9° \approx 23'08	30.92464 AU
retrograde	1353 May 19 j 00:36	24° \approx 04'40		retrograde	1361 Jun 06 j 08:37	11° \approx 55'05	
opposition	1353 Aug 07 j 18:32	22° \approx 40'10	0°-35'-5	min. Earth dist.	1361 Aug 25 j 07:07	10° \approx 31'25	28.92011 AU
min. Earth dist.	1353 Aug 07 j 01:08	22° \approx 41'22	28.98980 AU	opposition	1361 Aug 26 j 02:20	10° \approx 30'06	-1°-6'-17
direct	1353 Oct 25 j 12:21	21° \approx 17'07		direct	1361 Nov 12 j 05:36	9° \approx 06'57	
conjunction	1354 Feb 04 j 09:37	23° \approx 45'01	0°-34'-44	conjunction	1362 Feb 22 j 03:09	11° \approx 34'55	-1°-3'-37
minimum elong	1354 Feb 04 j 09:37	23° \approx 45'01	0°34'46	minimum elong	1362 Feb 22 j 03:09	11° \approx 34'55	1°03'39
max. Earth dist.	1354 Feb 05 j 02:37	23° \approx 46'37	30.98588 AU	max. Earth dist.	1362 Feb 23 j 00:03	11° \approx 36'54	30.91475 AU
retrograde	1354 May 21 j 13:23	26° \approx 18'02		retrograde	1362 Jun 08 j 22:18	14° \approx 08'50	
opposition	1354 Aug 10 j 07:41	24° \approx 53'30	0°-39'-13	opposition	1362 Aug 28 j 15:02	12° \approx 43'46	-1°-9'-48
min. Earth dist.	1354 Aug 09 j 14:35	24° \approx 54'41	28.98263 AU	min. Earth dist.	1362 Aug 27 j 18:14	12° \approx 45'12	28.91073 AU
direct	1354 Oct 27 j 22:36	23° \approx 30'29		direct	1362 Nov 14 j 18:37	11° \approx 20'35	
conjunction	1355 Feb 06 j 20:31	25° \approx 58'25	0°-38'-35	conjunction	1363 Feb 24 j 14:35	13° \approx 48'33	-1°-6'-52
minimum elong	1355 Feb 06 j 20:30	25° \approx 58'25	0°38'36	minimum elong	1363 Feb 24 j 14:35	13° \approx 48'33	1°06'52
max. Earth dist.	1355 Feb 07 j 14:59	26° \approx 00'10	30.97886 AU	max. Earth dist.	1363 Feb 25 j 11:29	13° \approx 50'32	30.90583 AU
retrograde	1355 May 24 j 01:42	28° \approx 31'36		retrograde	1363 Jun 11 j 11:44	16° \approx 22'34	
opposition	1355 Aug 12 j 20:36	27° \approx 07'03	0°-43'-19	min. Earth dist.	1363 Aug 30 j 07:22	14° \approx 58'50	28.90261 AU
min. Earth dist.	1355 Aug 12 j 02:12	27° \approx 08'19	28.97562 AU	opposition	1363 Aug 31 j 03:45	14° \approx 57'25	-1°-13'-13
direct	1355 Oct 30 j 10:21	25° \approx 44'04		direct	1363 Nov 17 j 05:35	13° \approx 34'13	
conjunction	1356 Feb 09 j 07:23	28° \approx 12'01	0°-42'-23	conjunction	1364 Feb 27 j 02:14	16° \approx 02'13	-1°-10'00
minimum elong	1356 Feb 09 j 07:23	28° \approx 12'01	0°42'25	minimum elong	1364 Feb 27 j 02:14	16° \approx 02'13	1°10'02
max. Earth dist.	1356 Feb 10 j 01:20	28° \approx 13'43	30.97172 AU	max. Earth dist.	1364 Feb 28 j 00:33	16° \approx 04'20	30.89835 AU
retrograde	1356 Apr 01 j 22:39	0° \approx		retrograde	1364 Jun 12 j 23:54	18° \approx 36'19	
opposition	1356 May 25 j 14:43	0° \approx 45'22		opposition	1364 Sep 01 j 16:19	17° \approx 11'08	-1°-16'-31
min. Earth dist.	1356 Jul 20 j 14:52	30° \approx		min. Earth dist.	1364 Sep 01 j 18:32	17° \approx 12'38	28.89578 AU
direct	1356 Aug 14 j 09:41	29° \approx 20'47	0°-47'-20	direct	1364 Nov 18 j 17:55	15° \approx 47'56	
conjunction	1356 Aug 13 j 15:32	29° \approx 22'02	28.96834 AU	conjunction	1365 Feb 28 j 13:45	18° \approx 15'57	-1°-13'-3
direct	1356 Oct 31 j 20:12	27° \approx 57'49		minimum elong	1365 Feb 28 j 13:45	18° \approx 15'57	1°13'03
	1357 Jan 30 j 09:27	0° \approx		max. Earth dist.	1365 Mar 01 j 11:38	18° \approx 18'02	30.89214 AU
conjunction	1357 Feb 10 j 18:37	0° \approx 25'49	0°-46'-7	retrograde	1365 Jun 15 j 12:41	20° \approx 50'10	
minimum elong	1357 Feb 10 j 18:37	0° \approx 25'49	0°46'07	min. Earth dist.	1365 Sep 03 j 07:17	19° \approx 26'28	28.89033 AU
max. Earth dist.	1357 Feb 11 j 13:57	0° \approx 27'38	30.96395 AU	opposition	1365 Sep 04 j 04:57	19° \approx 24'58	-1°-19'-42
retrograde	1357 May 28 j 02:39	2° \approx 59'17		direct	1365 Nov 21 j 03:39	18° \approx 01'47	
opposition	1357 Aug 16 j 22:37	1° \approx 34'40	0°-51'-17	conjunction	1366 Mar 03 j 01:35	20° \approx 29'52	-1°-15'-58
min. Earth dist.	1357 Aug 16 j 04:04	1° \approx 35'56	28.96011 AU	minimum elong	1366 Mar 03 j 01:34	20° \approx 29'51	1°16'00
direct	1357 Nov 03 j 07:27	0° \approx 11'42		max. Earth dist.	1366 Mar 04 j 01:06	20° \approx 32'05	30.88722 AU
conjunction	1358 Feb 13 j 05:48	2° \approx 39'42	0°-49'-46	retrograde	1366 Jun 18 j 00:40	23° \approx 04'11	
minimum elong	1358 Feb 13 j 05:48	2° \approx 39'42	0°49'48	opposition	1366 Sep 06 j 17:33	21° \approx 38'58	-1°-22'-47
max. Earth dist.	1358 Feb 14 j 00:21	2° \approx 41'27	30.95527 AU	min. Earth dist.	1366 Sep 05 j 19:16	21° \approx 40'31	28.88592 AU
retrograde	1358 May 30 j 17:05	5° \approx 13'18		direct	1366 Nov 23 j 14:39	20° \approx 15'49	
opposition	1358 Aug 19 j 11:42	3° \approx 48'36	0°-55'-10	conjunction	1367 Mar 05 j 13:21	22° \approx 43'58	-1°-18'-47
min. Earth dist.	1358 Aug 18 j 16:44	3° \approx 49'54	28.95099 AU				

minimum elong	1367 Mar 05 j 13:20	22° ✕ 43'58	1°18'48	minimum elong	1375 Mar 23 j 17:04	10° Υ 41'59	1°36'45
max. Earth dist.	1367 Mar 06 j 12:15	22° ✕ 46'08	30.88329 AU	max. Earth dist.	1375 Mar 24 j 16:54	10° Υ 44'14	30.84124 AU
retrograde	1367 Jun 20 j 15:16	25° ✕ 18'25		retrograde	1375 Jul 09 j 03:00	13° Υ 16'51	
min. Earth dist.	1367 Sep 08 j 07:36	23° ✕ 54'47	28.88234 AU	min. Earth dist.	1375 Sep 26 j 11:42	11° Υ 52'58	28.83983 AU
opposition	1367 Sep 09 j 06:12	23° ✕ 53'13	-1°-25'-44	opposition	1375 Sep 27 j 09:34	11° Υ 51'26	-1°-44'-21
direct	1367 Nov 26 j 00:13	22° ✕ 30'05		direct	1375 Dec 13 j 23:22	10° Υ 28'06	
conjunction	1368 Mar 07 j 01:31	24° ✕ 58'19	-1°-21'-29	conjunction	1376 Mar 25 j 05:47	12° Υ 56'41	-1°-38'-22
minimum elong	1368 Mar 07 j 01:30	24° ✕ 58'19	1°21'31	minimum elong	1376 Mar 25 j 05:47	12° Υ 56'41	1°38'23
max. Earth dist.	1368 Mar 08 j 01:23	25° ✕ 00'34	30.87970 AU	max. Earth dist.	1376 Mar 26 j 04:41	12° Υ 58'50	30.83654 AU
retrograde	1368 Jun 22 j 03:49	27° ✕ 32'52		retrograde	1376 Jul 10 j 16:15	15° Υ 31'34	
opposition	1368 Sep 10 j 18:40	26° ✕ 07'41	-1°-28'-33	opposition	1376 Sep 28 j 21:35	14° Υ 06'07	-1°-46'00
min. Earth dist.	1368 Sep 09 j 20:30	26° ✕ 09'14	28.87879 AU	min. Earth dist.	1376 Sep 27 j 23:37	14° Υ 07'39	28.83585 AU
direct	1368 Nov 27 j 11:56	24° ✕ 44'36		direct	1376 Dec 15 j 09:40	12° Υ 42'45	
conjunction	1369 Mar 09 j 13:45	27° ✕ 12'54	-1°-24'-4	conjunction	1377 Mar 27 j 18:39	15° Υ 11'22	-1°-39'-50
minimum elong	1369 Mar 09 j 13:45	27° ✕ 12'54	1°24'04	minimum elong	1377 Mar 27 j 18:39	15° Υ 11'22	1°39'50
max. Earth dist.	1369 Mar 10 j 13:06	27° ✕ 15'06	30.87607 AU	max. Earth dist.	1377 Mar 28 j 18:31	15° Υ 13'37	30.83310 AU
retrograde	1369 Jun 24 j 19:04	29° ✕ 47'34		retrograde	1377 Jul 13 j 03:14	17° Υ 46'16	
min. Earth dist.	1369 Sep 12 j 08:25	28° ✕ 23'58	28.87493 AU	min. Earth dist.	1377 Sep 30 j 11:57	16° Υ 22'20	28.83311 AU
opposition	1369 Sep 13 j 07:14	28° ✕ 22'23	-1°-31'-14	opposition	1377 Oct 01 j 09:41	16° Υ 20'48	-1°-47'-30
direct	1369 Nov 29 j 23:17	26° ✕ 59'18		direct	1377 Dec 17 j 21:01	14° Υ 57'25	
conjunction	1370 Mar 12 j 02:02	29° ✕ 27'41	-1°-26'-31	conjunction	1378 Mar 30 j 07:23	17° Υ 26'05	-1°-41'-9
minimum elong	1370 Mar 12 j 02:02	29° ✕ 27'41	1°26'33	minimum elong	1378 Mar 30 j 07:23	17° Υ 26'05	1°41'10
max. Earth dist.	1370 Mar 13 j 01:31	29° ✕ 29'54	30.87166 AU	max. Earth dist.	1378 Mar 31 j 06:47	17° Υ 28'18	30.83113 AU
	1370 Mar 26 j 09:58	0° Υ		retrograde	1378 Jul 15 j 17:39	20° Υ 01'01	
retrograde	1370 Jun 27 j 08:01	2° Υ 02'27		opposition	1378 Oct 03 j 21:44	18° Υ 35'33	-1°-48'-49
opposition	1370 Sep 15 j 19:57	0° Υ 37'15	-1°-33'-47	min. Earth dist.	1378 Oct 02 j 23:15	18° Υ 37'08	28.83176 AU
min. Earth dist.	1370 Sep 14 j 22:15	0° Υ 38'45	28.87013 AU	direct	1378 Dec 20 j 07:38	17° Υ 12'09	
	1370 Oct 08 j 22:27	30° R ✕		conjunction	1379 Apr 01 j 20:27	19° Υ 40'54	-1°-42'-19
direct	1370 Dec 02 j 10:19	29° ✕ 14'09		minimum elong	1379 Apr 01 j 20:27	19° Υ 40'54	1°42'19
	1371 Jan 23 j 21:15	0° Υ		max. Earth dist.	1379 Apr 02 j 20:09	19° Υ 43'08	30.83022 AU
conjunction	1371 Mar 14 j 14:38	1° Υ 42'35	-1°-28'-50	retrograde	1379 Jul 18 j 06:03	22° Υ 15'50	
minimum elong	1371 Mar 14 j 14:38	1° Υ 42'35	1°28'51	opposition	1379 Oct 06 j 09:42	20° Υ 50'24	-1°-49'-58
max. Earth dist.	1371 Mar 15 j 14:07	1° Υ 44'48	30.86642 AU	min. Earth dist.	1379 Oct 05 j 12:20	20° Υ 51'54	28.83134 AU
retrograde	1371 Jun 29 j 23:09	4° Υ 17'24		direct	1379 Dec 22 j 18:08	19° Υ 27'00	
min. Earth dist.	1371 Sep 17 j 09:54	2° Υ 53'44	28.86438 AU	conjunction	1380 Apr 03 j 09:41	21° Υ 55'50	-1°-43'-19
opposition	1371 Sep 18 j 08:21	2° Υ 52'10	-1°-36'-12	minimum elong	1380 Apr 03 j 09:41	21° Υ 55'50	1°43'21
direct	1371 Dec 04 j 23:49	1° Υ 29'03		max. Earth dist.	1380 Apr 04 j 09:22	21° Υ 58'04	30.83022 AU
conjunction	1372 Mar 16 j 03:12	3° Υ 57'31	-1°-31'-2	retrograde	1380 Jul 19 j 20:59	24° Υ 30'47	
minimum elong	1372 Mar 16 j 03:12	3° Υ 57'31	1°31'03	opposition	1380 Oct 07 j 21:37	23° Υ 05'23	-1°-50'-57
max. Earth dist.	1372 Mar 17 j 01:54	3° Υ 59'40	30.86018 AU	min. Earth dist.	1380 Oct 06 j 23:34	23° Υ 06'56	28.83149 AU
retrograde	1372 Jul 01 j 13:25	6° Υ 32'22		direct	1380 Dec 24 j 07:17	21° Υ 41'59	
opposition	1372 Sep 19 j 20:52	5° Υ 07'05	-1°-38'-28	conjunction	1381 Apr 05 j 22:50	24° Υ 10'54	-1°-44'-9
min. Earth dist.	1372 Sep 18 j 23:36	5° Υ 08'34	28.85791 AU	minimum elong	1381 Apr 05 j 22:50	24° Υ 10'54	1°44'10
direct	1372 Dec 06 j 11:40	3° Υ 43'55		max. Earth dist.	1381 Apr 06 j 21:43	24° Υ 13'04	30.83030 AU
conjunction	1373 Mar 18 j 15:47	6° Υ 12'25	-1°-33'-5	retrograde	1381 Jul 22 j 10:44	26° Υ 45'53	
minimum elong	1373 Mar 18 j 15:47	6° Υ 12'25	1°33'05	opposition	1381 Oct 10 j 09:41	25° Υ 20'30	-1°-51'-46
max. Earth dist.	1373 Mar 19 j 15:16	6° Υ 14'38	30.85353 AU	min. Earth dist.	1381 Oct 09 j 13:03	25° Υ 21'57	28.83155 AU
retrograde	1373 Jul 04 j 01:41	8° Υ 47'16		direct	1381 Dec 26 j 18:41	23° Υ 57'06	
min. Earth dist.	1373 Sep 21 j 11:00	7° Υ 23'29	28.85123 AU	conjunction	1382 Apr 08 j 12:24	26° Υ 26'07	-1°-44'-50
opposition	1373 Sep 22 j 09:07	7° Υ 21'57	-1°-40'-35	minimum elong	1382 Apr 08 j 12:24	26° Υ 26'07	1°44'52
direct	1373 Dec 09 j 00:45	5° Υ 58'43		max. Earth dist.	1382 Apr 09 j 11:31	26° Υ 28'18	30.83013 AU
conjunction	1374 Mar 21 j 04:20	8° Υ 27'14	-1°-34'-59	retrograde	1382 Jul 25 j 00:34	29° Υ 01'06	
minimum elong	1374 Mar 21 j 04:20	8° Υ 27'14	1°35'01	opposition	1382 Oct 12 j 21:34	27° Υ 35'44	-1°-52'-25
max. Earth dist.	1374 Mar 22 j 02:53	8° Υ 29'22	30.84701 AU	min. Earth dist.	1382 Oct 12 j 00:36	27° Υ 37'13	28.83095 AU
retrograde	1374 Jul 06 j 14:52	11° Υ 02'06		direct	1382 Dec 29 j 07:43	26° Υ 12'19	
opposition	1374 Sep 24 j 21:26	9° Υ 36'43	-1°-42'-33	conjunction	1383 Apr 11 j 01:55	28° Υ 41'24	-1°-45'-22
min. Earth dist.	1374 Sep 23 j 23:55	9° Υ 38'13	28.84513 AU	minimum elong	1383 Apr 11 j 01:55	28° Υ 41'24	1°45'22
direct	1374 Dec 11 j 11:25	8° Υ 13'26		max. Earth dist.	1383 Apr 11 j 23:22	28° Υ 43'25	30.82905 AU
conjunction	1375 Mar 23 j 17:04	10° Υ 41'59	-1°-36'-45		1383 May 17 j 12:45	0° ♄	

retrograde	1383 Jul 27 j 14:59	1°♄16'22		minimum elong	1391 Apr 29 j 15:21	16°♄41'46	1°43'48
	1383 Oct 10 j 01:36	30°♄♂		max. Earth dist.	1391 Apr 30 j 10:30	16°♄43'34	30.81908 AU
opposition	1383 Oct 15 j 09:35	29°♄51'01	-1°-52'-53	retrograde	1391 Aug 14 j 20:33	19°♄16'14	
min. Earth dist.	1383 Oct 14 j 13:53	29°♄52'24	28.82939 AU	opposition	1391 Nov 02 j 05:30	17°♄50'56	-1°-50'-31
direct	1383 Dec 31 j 19:02	28°♄27'33		min. Earth dist.	1391 Nov 01 j 12:15	17°♄52'10	28.82183 AU
	1384 Mar 17 j 22:21	0°♄		direct	1392 Jan 18 j 16:51	16°♄27'04	
conjunction	1384 Apr 12 j 15:41	0°♄56'42	-1°-45'-44	conjunction	1392 May 01 j 05:07	18°♄56'45	-1°-42'-52
minimum elong	1384 Apr 12 j 15:41	0°♄56'42	1°45'45	minimum elong	1392 May 01 j 05:07	18°♄56'45	1°42'53
max. Earth dist.	1384 Apr 13 j 13:34	0°♄58'46	30.82694 AU	max. Earth dist.	1392 May 01 j 22:54	18°♄58'25	30.82264 AU
retrograde	1384 Jul 29 j 03:41	3°♄31'37		retrograde	1392 Aug 16 j 11:10	21°♄31'10	
opposition	1384 Oct 16 j 21:19	2°♄06'16	-1°-53'-11	opposition	1392 Nov 03 j 16:44	20°♄05'56	-1°-49'-26
min. Earth dist.	1384 Oct 16 j 01:56	2°♄07'38	28.82677 AU	min. Earth dist.	1392 Nov 03 j 00:36	20°♄07'05	28.82591 AU
direct	1385 Jan 02 j 07:50	0°♄42'45		direct	1393 Jan 20 j 04:23	18°♄42'04	
conjunction	1385 Apr 15 j 05:14	3°♄11'57	-1°-45'-56	conjunction	1393 May 03 j 19:10	21°♄11'52	-1°-41'-47
minimum elong	1385 Apr 15 j 05:14	3°♄11'57	1°45'57	minimum elong	1393 May 03 j 19:10	21°♄11'52	1°41'48
max. Earth dist.	1385 Apr 16 j 01:29	3°♄13'51	30.82412 AU	max. Earth dist.	1393 May 04 j 13:31	21°♄13'35	30.82709 AU
retrograde	1385 Jul 31 j 16:48	5°♄46'48		retrograde	1393 Aug 19 j 00:09	23°♄46'12	
opposition	1385 Oct 19 j 09:04	4°♄21'26	-1°-53'-19	opposition	1393 Nov 06 j 03:55	22°♄21'03	-1°-48'-12
min. Earth dist.	1385 Oct 18 j 14:12	4°♄22'46	28.82381 AU	min. Earth dist.	1393 Nov 05 j 12:07	22°♄22'10	28.83045 AU
direct	1386 Jan 04 j 18:51	2°♄57'51		direct	1394 Jan 22 j 17:29	20°♄57'11	
conjunction	1386 Apr 17 j 18:50	5°♄27'05	-1°-45'-59	conjunction	1394 May 06 j 09:06	23°♄27'04	-1°-40'-33
minimum elong	1386 Apr 17 j 18:50	5°♄27'05	1°46'00	minimum elong	1394 May 06 j 09:06	23°♄27'04	1°40'34
max. Earth dist.	1386 Apr 18 j 15:35	5°♄29'02	30.82105 AU	max. Earth dist.	1394 May 07 j 01:38	23°♄28'37	30.83174 AU
retrograde	1386 Aug 03 j 03:38	8°♄01'53		retrograde	1394 Aug 21 j 13:44	26°♄01'21	
opposition	1386 Oct 21 j 20:45	6°♄36'29	-1°-53'-17	opposition	1394 Nov 08 j 15:11	24°♄36'16	-1°-46'-47
min. Earth dist.	1386 Oct 21 j 02:39	6°♄37'46	28.82081 AU	min. Earth dist.	1394 Nov 08 j 00:12	24°♄37'19	28.83496 AU
direct	1387 Jan 07 j 06:39	5°♄12'50		direct	1395 Jan 25 j 04:35	23°♄12'22	
conjunction	1387 Apr 20 j 08:29	7°♄42'08	-1°-45'-52	conjunction	1395 May 08 j 23:27	25°♄42'21	-1°-39'-10
minimum elong	1387 Apr 20 j 08:29	7°♄42'08	1°45'52	minimum elong	1395 May 08 j 23:27	25°♄42'21	1°39'10
max. Earth dist.	1387 Apr 21 j 04:07	7°♄43'58	30.81840 AU	max. Earth dist.	1395 May 09 j 15:59	25°♄43'54	30.83586 AU
retrograde	1387 Aug 05 j 17:32	10°♄16'51		retrograde	1395 Aug 24 j 01:35	28°♄16'32	
opposition	1387 Oct 24 j 08:06	8°♄51'27	-1°-53'-4	opposition	1395 Nov 11 j 02:19	26°♄51'30	-1°-45'-13
min. Earth dist.	1387 Oct 23 j 13:42	8°♄52'45	28.81852 AU	min. Earth dist.	1395 Nov 10 j 12:36	26°♄52'28	28.83863 AU
direct	1388 Jan 09 j 17:17	7°♄27'43		direct	1396 Jan 27 j 16:37	25°♄27'34	
conjunction	1388 Apr 21 j 22:11	9°♄57'05	-1°-45'-35	conjunction	1396 May 10 j 13:41	27°♄57'37	-1°-37'-38
minimum elong	1388 Apr 21 j 22:12	9°♄57'05	1°45'36	minimum elong	1396 May 10 j 13:42	27°♄57'37	1°37'39
max. Earth dist.	1388 Apr 22 j 17:53	9°♄58'56	30.81648 AU	max. Earth dist.	1396 May 11 j 04:20	27°♄58'59	30.83924 AU
retrograde	1388 Aug 07 j 04:35	12°♄31'44			1396 Jul 12 j 07:13	0°♂	
opposition	1388 Oct 25 j 19:36	11°♄06'20	-1°-52'-41	retrograde	1396 Aug 25 j 15:37	0°♂31'40	
min. Earth dist.	1388 Oct 25 j 02:23	11°♄07'33	28.81720 AU		1396 Oct 09 j 14:01	30°♄♂	
direct	1389 Jan 11 j 03:57	9°♄42'33		opposition	1396 Nov 12 j 13:29	29°♄06'40	-1°-43'-30
conjunction	1389 Apr 24 j 11:46	12°♄11'58	-1°-45'-9	min. Earth dist.	1396 Nov 11 j 23:55	29°♄07'38	28.84154 AU
minimum elong	1389 Apr 24 j 11:46	12°♄11'58	1°45'09	direct	1397 Jan 29 j 03:46	27°♄42'40	
max. Earth dist.	1389 Apr 25 j 07:16	12°♄13'48	30.81589 AU		1397 May 07 j 11:10	0°♂	
retrograde	1389 Aug 09 j 18:12	14°♄46'34		conjunction	1397 May 13 j 03:48	0°♂12'46	-1°-35'-57
opposition	1389 Oct 28 j 06:55	13°♄21'11	-1°-52'-8	minimum elong	1397 May 13 j 03:49	0°♂12'46	1°35'57
min. Earth dist.	1389 Oct 27 j 12:58	13°♄22'27	28.81727 AU	max. Earth dist.	1397 May 13 j 18:02	0°♂14'06	30.84173 AU
direct	1390 Jan 13 j 17:07	11°♄57'21		retrograde	1397 Aug 28 j 01:39	2°♂46'42	
conjunction	1390 Apr 27 j 01:27	14°♄26'51	-1°-44'-33	opposition	1397 Nov 15 j 00:40	1°♂21'43	-1°-41'-37
minimum elong	1390 Apr 27 j 01:27	14°♄26'51	1°44'34	min. Earth dist.	1397 Nov 14 j 12:48	1°♂22'34	28.84373 AU
max. Earth dist.	1390 Apr 27 j 20:18	14°♄28'37	30.81668 AU	direct	1398 Jan 19 j 22:21	30°♄♂	
	1390 May 11 j 21:16	15°♄			1398 Jan 31 j 15:00	29°♄57'39	
retrograde	1390 Aug 12 j 06:47	17°♄01'23			1398 Feb 12 j 08:09	0°♂	
opposition	1390 Oct 30 j 18:16	15°♄36'02	-1°-51'-24	conjunction	1398 May 15 j 18:03	2°♂27'46	-1°-34'-7
min. Earth dist.	1390 Oct 30 j 01:35	15°♄37'13	28.81888 AU	minimum elong	1398 May 15 j 18:03	2°♂27'46	1°34'08
	1390 Nov 21 j 16:25	15°♄♂		max. Earth dist.	1398 May 16 j 07:17	2°♂29'01	30.84391 AU
direct	1391 Jan 16 j 04:04	14°♄12'10		retrograde	1398 Aug 30 j 14:10	5°♂01'33	
	1391 Mar 11 j 02:34	15°♄		opposition	1398 Nov 17 j 11:29	3°♂36'35	-1°-39'-35
conjunction	1391 Apr 29 j 15:21	16°♄41'46	-1°-43'-47	min. Earth dist.	1398 Nov 16 j 23:29	3°♂37'26	28.84575 AU
				direct	1399 Feb 03 j 03:44	2°♂12'25	

conjunction	1399 May 18 j 08:15	4°II42'36	-1°-32'-9	retrograde	1407 Sep 20 j 05:42	25°II10'56	
minimum elong	1399 May 18 j 08:16	4°II42'36	1°32'10	opposition	1407 Dec 07 j 11:42	23°II46'36	-1°-15'00
max. Earth dist.	1399 May 18 j 20:27	4°II43'44	30.84597 AU	min. Earth dist.	1407 Dec 07 j 05:46	23°II47'01	28.90328 AU
retrograde	1399 Sep 02 j 01:38	7°II16'13		direct	1408 Feb 23 j 13:45	22°II22'11	
opposition	1399 Nov 19 j 22:27	5°II51'15	-1°-37'-25				
min. Earth dist.	1399 Nov 19 j 12:09	5°II51'59	28.84803 AU	conjunction	1408 Jun 07 j 15:42	24°II53'04	-1°-8'-36
direct	1400 Feb 05 j 14:22	4°II27'00		minimum elong	1408 Jun 07 j 15:42	24°II53'04	1°08'36
				max. Earth dist.	1408 Jun 07 j 20:58	24°II53'34	30.90683 AU
conjunction	1400 May 19 j 22:24	6°II57'13	-1°-30'-3	retrograde	1408 Sep 21 j 16:54	27°II25'32	
minimum elong	1400 May 19 j 22:24	6°II57'13	1°30'03	opposition	1408 Dec 08 j 22:27	26°II01'17	-1°-11'-38
max. Earth dist.	1400 May 20 j 10:28	6°II58'21	30.84860 AU	min. Earth dist.	1408 Dec 08 j 18:30	26°II01'34	28.91112 AU
retrograde	1400 Sep 03 j 14:05	9°II30'41		direct	1409 Feb 24 j 23:31	24°II36'49	
opposition	1400 Nov 21 j 09:08	8°II05'45	-1°-35'-5				
min. Earth dist.	1400 Nov 20 j 22:31	8°II06'30	28.85097 AU	conjunction	1409 Jun 10 j 06:04	27°II07'47	-1°-5'-24
direct	1401 Feb 07 j 03:39	6°II41'26		minimum elong	1409 Jun 10 j 06:04	27°II07'47	1°05'25
				max. Earth dist.	1409 Jun 10 j 10:33	27°II08'12	30.91428 AU
conjunction	1401 May 22 j 12:24	9°II11'41	-1°-27'-48	retrograde	1409 Sep 24 j 04:37	29°II40'05	
minimum elong	1401 May 22 j 12:24	9°II11'41	1°27'49	opposition	1409 Dec 11 j 08:56	28°II15'54	-1°-8'-10
max. Earth dist.	1401 May 22 j 22:58	9°II12'41	30.85212 AU	min. Earth dist.	1409 Dec 11 j 05:10	28°II16'10	28.91800 AU
retrograde	1401 Sep 06 j 03:13	11°II45'01		direct	1410 Feb 27 j 12:53	26°II51'24	
opposition	1401 Nov 23 j 19:55	10°II20'06	-1°-32'-38				
min. Earth dist.	1401 Nov 23 j 10:24	10°II20'46	28.85518 AU	conjunction	1410 Jun 12 j 20:17	29°II22'24	-1°-2'-6
direct	1402 Feb 09 j 15:18	8°II55'43		minimum elong	1410 Jun 12 j 20:17	29°II22'24	1°02'07
				max. Earth dist.	1410 Jun 12 j 22:46	29°II22'38	30.92080 AU
conjunction	1402 May 25 j 02:30	11°II26'03	-1°-25'-26		1410 Jun 29 j 19:55	0°☾	
minimum elong	1402 May 25 j 02:31	11°II26'03	1°25'27	retrograde	1410 Sep 26 j 16:48	1°☾54'32	
max. Earth dist.	1402 May 25 j 13:36	11°II27'05	30.85702 AU	opposition	1410 Dec 13 j 19:32	0°☾30'24	-1°-4'-36
retrograde	1402 Sep 08 j 15:18	13°II59'13		min. Earth dist.	1410 Dec 13 j 17:20	0°☾30'33	28.92419 AU
opposition	1402 Nov 26 j 06:36	12°II34'22	-1°-30'-1		1411 Jan 01 j 02:02	30°☾II	
min. Earth dist.	1402 Nov 25 j 21:15	12°II35'02	28.86066 AU	direct	1411 Mar 02 j 00:48	29°II05'49	
direct	1403 Feb 12 j 04:41	11°II09'57			1411 Apr 29 j 11:15	0°☾	
conjunction	1403 May 27 j 16:34	13°II40'21	-1°-22'-56	conjunction	1411 Jun 15 j 10:38	1°☾36'52	0°-58'-44
minimum elong	1403 May 27 j 16:34	13°II40'21	1°22'57	minimum elong	1411 Jun 15 j 10:38	1°☾36'52	0°58'45
max. Earth dist.	1403 May 28 j 01:57	13°II41'14	30.86333 AU	max. Earth dist.	1411 Jun 15 j 13:00	1°☾37'06	30.92677 AU
retrograde	1403 Sep 11 j 04:42	16°II13'24		retrograde	1411 Sep 29 j 04:07	4°☾08'48	
opposition	1403 Nov 28 j 17:12	14°II48'37	-1°-27'-16	opposition	1411 Dec 16 j 05:54	2°☾44'42	-1°00'-56
min. Earth dist.	1403 Nov 28 j 08:23	14°II49'15	28.86772 AU	min. Earth dist.	1411 Dec 16 j 04:22	2°☾44'49	28.92991 AU
direct	1404 Feb 14 j 15:47	13°II24'11		direct	1412 Mar 03 j 14:22	1°☾20'03	
conjunction	1404 May 29 j 06:46	15°II54'41	-1°-20'-18	conjunction	1412 Jun 17 j 00:40	3°☾51'08	0°-55'-16
minimum elong	1404 May 29 j 06:46	15°II54'41	1°20'19	minimum elong	1412 Jun 17 j 00:41	3°☾51'08	0°55'16
max. Earth dist.	1404 May 29 j 16:38	15°II55'37	30.87107 AU	max. Earth dist.	1412 Jun 17 j 01:02	3°☾51'10	30.93259 AU
retrograde	1404 Sep 12 j 16:46	18°II27'37		retrograde	1412 Sep 30 j 17:10	6°☾22'53	
opposition	1404 Nov 30 j 03:54	17°II02'56	-1°-24'-24	opposition	1412 Dec 17 j 16:19	4°☾58'49	0°-57'-12
min. Earth dist.	1404 Nov 29 j 19:59	17°II03'30	28.87599 AU	min. Earth dist.	1412 Dec 17 j 15:31	4°☾58'52	28.93589 AU
direct	1405 Feb 16 j 03:54	15°II38'31		direct	1413 Mar 06 j 01:58	3°☾34'05	
conjunction	1405 May 31 j 20:42	18°II09'07	-1°-17'-33	conjunction	1413 Jun 19 j 14:39	6°☾05'12	0°-51'-43
minimum elong	1405 May 31 j 20:42	18°II09'07	1°17'34	minimum elong	1413 Jun 19 j 14:39	6°☾05'12	0°51'45
max. Earth dist.	1405 Jun 01 j 04:57	18°II09'53	30.88000 AU	max. Earth dist.	1413 Jun 19 j 15:22	6°☾05'16	30.93875 AU
retrograde	1405 Sep 15 j 06:34	20°II41'56		retrograde	1413 Oct 03 j 04:53	8°☾36'45	
opposition	1405 Dec 02 j 14:30	19°II17'22	-1°-21'-23	opposition	1413 Dec 20 j 02:43	7°☾12'43	0°-53'-22
min. Earth dist.	1405 Dec 02 j 06:36	19°II17'56	28.88520 AU	min. Earth dist.	1413 Dec 20 j 03:01	7°☾12'41	28.94229 AU
direct	1406 Feb 18 j 14:56	17°II52'58		direct	1414 Mar 08 j 15:40	5°☾47'56	
conjunction	1406 Jun 03 j 11:02	20°II23'40	-1°-14'-41	conjunction	1414 Jun 22 j 04:35	8°☾19'04	0°-48'-6
minimum elong	1406 Jun 03 j 11:02	20°II23'40	1°14'42	minimum elong	1414 Jun 22 j 04:35	8°☾19'04	0°48'07
max. Earth dist.	1406 Jun 03 j 19:00	20°II24'24	30.88933 AU	max. Earth dist.	1414 Jun 22 j 03:31	8°☾18'58	30.94568 AU
retrograde	1406 Sep 17 j 16:55	22°II56'23		retrograde	1414 Oct 05 j 17:22	10°☾50'25	
opposition	1406 Dec 05 j 01:06	21°II31'57	-1°-18'-15	opposition	1414 Dec 22 j 12:53	9°☾26'25	0°-49'-28
min. Earth dist.	1406 Dec 04 j 19:04	21°II32'22	28.89449 AU	min. Earth dist.	1414 Dec 22 j 13:05	9°☾26'24	28.94973 AU
direct	1407 Feb 21 j 01:43	20°II07'32		direct	1415 Mar 11 j 03:58	8°☾01'35	
conjunction	1407 Jun 06 j 01:25	22°II38'20	-1°-11'-41	conjunction	1415 Jun 24 j 18:36	10°☾32'45	0°-44'-25
minimum elong	1407 Jun 06 j 01:25	22°II38'20	1°11'42	minimum elong	1415 Jun 24 j 18:36	10°☾32'45	0°44'27
max. Earth dist.	1407 Jun 06 j 07:57	22°II38'57	30.89854 AU	max. Earth dist.	1415 Jun 24 j 17:31	10°☾32'39	30.95362 AU

retrograde	1415 Oct 08 j 03:35	13° $\overline{50}$ 03'56		retrograde	1423 Oct 25 j 23:50	0° $\overline{02}$ 51'08	
opposition	1415 Dec 24 j 23:18	11° $\overline{54}$ 40'00	0°-45'-29		1423 Dec 22 j 21:30	30° $\overline{08}$ 00	
min. Earth dist.	1415 Dec 25 j 00:57	11° $\overline{53}$ 39'53	28.95828 AU	opposition	1424 Jan 11 j 09:35	29° $\overline{52}$ 27'51	0°-11'-47
direct	1416 Mar 12 j 15:20	10° $\overline{51}$ 15'08		min. Earth dist.	1424 Jan 11 j 17:24	29° $\overline{52}$ 27'18	29.03401 AU
				direct	1424 Mar 30 j 15:09	28° $\overline{50}$ 02'49	
conjunction	1416 Jun 26 j 08:19	12° $\overline{54}$ 46'20	0°-40'-40		1424 Jun 29 j 08:19	0° $\overline{02}$	
minimum elong	1416 Jun 26 j 08:19	12° $\overline{54}$ 46'20	0°40'41				
max. Earth dist.	1416 Jun 26 j 06:11	12° $\overline{54}$ 46'09	30.96291 AU	conjunction	1424 Jul 14 j 22:27	0° $\overline{03}$ 34'25	0°-9'-1
retrograde	1416 Oct 09 j 16:01	15° $\overline{57}$ 17'21		minimum elong	1424 Jul 14 j 22:28	0° $\overline{03}$ 34'25	0°09'02
opposition	1416 Dec 26 j 09:31	13° $\overline{55}$ 53'30	0°-41'-27	behind sun begin	1424 Jul 14 j 16:52	0° $\overline{03}$ 33'55	
min. Earth dist.	1416 Dec 26 j 10:46	13° $\overline{55}$ 53'25	28.96809 AU	behind sun end	1424 Jul 15 j 04:03	0° $\overline{03}$ 34'55	
direct	1417 Mar 15 j 03:15	12° $\overline{52}$ 28'37		max. Earth dist.	1424 Jul 14 j 12:38	0° $\overline{03}$ 33'31	31.03724 AU
				retrograde	1424 Oct 27 j 09:55	3° $\overline{04}$ 04'10	
conjunction	1417 Jun 28 j 22:08	14° $\overline{55}$ 59'53	0°-36'-51	opposition	1425 Jan 12 j 19:53	1° $\overline{04}$ 05'56	0°-7'-27
minimum elong	1417 Jun 28 j 22:08	14° $\overline{55}$ 59'53	0°36'53	min. Earth dist.	1425 Jan 13 j 05:23	1° $\overline{04}$ 01'16	29.04059 AU
max. Earth dist.	1417 Jun 28 j 19:23	14° $\overline{55}$ 59'38	30.97325 AU	direct	1425 Apr 02 j 03:06	0° $\overline{02}$ 15'51	
retrograde	1417 Oct 12 j 02:28	17° $\overline{53}$ 30'45					
opposition	1417 Dec 28 j 19:47	16° $\overline{50}$ 07'00	0°-37'-20	conjunction	1425 Jul 17 j 11:49	2° $\overline{04}$ 47'27	0°-4'-59
min. Earth dist.	1417 Dec 28 j 22:44	16° $\overline{50}$ 06'48	28.97890 AU	minimum elong	1425 Jul 17 j 11:49	2° $\overline{04}$ 47'27	0°05'01
direct	1418 Mar 17 j 12:39	14° $\overline{54}$ 42'06		behind sun begin	1425 Jul 17 j 05:25	2° $\overline{04}$ 46'53	
				behind sun end	1425 Jul 17 j 18:14	2° $\overline{04}$ 48'01	
conjunction	1418 Jul 01 j 12:02	17° $\overline{51}$ 13'27	0°-32'-59	max. Earth dist.	1425 Jul 17 j 00:42	2° $\overline{04}$ 46'26	31.04390 AU
minimum elong	1418 Jul 01 j 12:02	17° $\overline{51}$ 13'27	0°33'00	retrograde	1425 Oct 29 j 22:04	5° $\overline{01}$ 17'01	
max. Earth dist.	1418 Jul 01 j 08:44	17° $\overline{51}$ 13'08	30.98439 AU	opposition	1426 Jan 15 j 05:52	3° $\overline{05}$ 53'50	0°-3'-6
retrograde	1418 Oct 14 j 13:21	19° $\overline{54}$ 44'10		min. Earth dist.	1426 Jan 15 j 15:09	3° $\overline{05}$ 53'10	29.04733 AU
opposition	1418 Dec 31 j 06:01	18° $\overline{52}$ 20'32	0°-33'-10	direct	1426 Apr 04 j 15:35	2° $\overline{02}$ 28'41	
min. Earth dist.	1418 Dec 31 j 09:00	18° $\overline{52}$ 20'19	28.98997 AU				
direct	1419 Mar 20 j 01:40	16° $\overline{55}$ 55'38		conjunction	1426 Jul 20 j 01:12	5° $\overline{02}$ 00'18	0°00'-53
				minimum elong	1426 Jul 20 j 01:10	5° $\overline{02}$ 00'18	0°00'53
conjunction	1419 Jul 04 j 01:51	19° $\overline{52}$ 27'03	0°-29'-4	behind sun begin	1426 Jul 19 j 18:35	4° $\overline{02}$ 59'43	
minimum elong	1419 Jul 04 j 01:51	19° $\overline{52}$ 27'03	0°29'05	behind sun end	1426 Jul 20 j 07:45	5° $\overline{02}$ 00'53	
max. Earth dist.	1419 Jul 03 j 20:47	19° $\overline{52}$ 26'35	30.99532 AU	max. Earth dist.	1426 Jul 19 j 13:29	4° $\overline{02}$ 59'14	31.05081 AU
retrograde	1419 Oct 17 j 00:41	21° $\overline{55}$ 57'38		asc. node	1426 Oct 06 j 13:02	7° $\overline{02}$ 18'25	
opposition	1420 Jan 02 j 16:20	20° $\overline{53}$ 34'06	0°-28'-57	retrograde	1426 Nov 01 j 07:41	7° $\overline{02}$ 29'42	
min. Earth dist.	1420 Jan 02 j 20:50	20° $\overline{53}$ 33'47	29.00074 AU	opposition	1427 Jan 17 j 16:06	6° $\overline{02}$ 06'33	0°01'13
direct	1420 Mar 21 j 12:14	19° $\overline{50}$ 09'12		min. Earth dist.	1427 Jan 18 j 02:54	6° $\overline{02}$ 05'47	29.05468 AU
				direct	1427 Apr 07 j 01:31	4° $\overline{04}$ 41'21	
conjunction	1420 Jul 05 j 15:47	21° $\overline{54}$ 40'41	0°-25'-6				
minimum elong	1420 Jul 05 j 15:47	21° $\overline{54}$ 40'41	0°25'07	conjunction	1427 Jul 22 j 14:19	7° $\overline{02}$ 12'59	0°03'16
max. Earth dist.	1420 Jul 05 j 10:30	21° $\overline{54}$ 40'12	31.00571 AU	minimum elong	1427 Jul 22 j 14:19	7° $\overline{02}$ 12'59	0°03'16
retrograde	1420 Oct 18 j 11:45	24° $\overline{51}$ 11'07		behind sun begin	1427 Jul 22 j 07:46	7° $\overline{02}$ 12'24	
opposition	1421 Jan 04 j 02:42	22° $\overline{54}$ 47'41	0°-24'-42	behind sun end	1427 Jul 22 j 20:52	7° $\overline{02}$ 13'33	
min. Earth dist.	1421 Jan 04 j 07:58	22° $\overline{54}$ 47'18	29.01056 AU	max. Earth dist.	1427 Jul 22 j 02:22	7° $\overline{02}$ 11'53	31.05862 AU
direct	1421 Mar 24 j 01:00	21° $\overline{52}$ 22'46		retrograde	1427 Nov 03 j 17:09	9° $\overline{04}$ 42'13	
				opposition	1428 Jan 20 j 02:11	8° $\overline{04}$ 19'07	0°05'33
conjunction	1421 Jul 08 j 05:26	23° $\overline{55}$ 54'17	0°-21'-7	min. Earth dist.	1428 Jan 20 j 12:37	8° $\overline{04}$ 18'23	29.06299 AU
minimum elong	1421 Jul 08 j 05:25	23° $\overline{55}$ 54'17	0°21'08	direct	1428 Apr 08 j 14:40	6° $\overline{05}$ 53'54	
max. Earth dist.	1421 Jul 07 j 21:55	23° $\overline{55}$ 53'36	31.01504 AU				
retrograde	1421 Oct 21 j 00:22	26° $\overline{52}$ 24'34		conjunction	1428 Jul 24 j 03:21	9° $\overline{05}$ 25'32	0°07'18
opposition	1422 Jan 06 j 13:04	25° $\overline{50}$ 01'11	0°-20'-25	minimum elong	1428 Jul 24 j 03:20	9° $\overline{05}$ 25'32	0°07'19
min. Earth dist.	1422 Jan 06 j 19:16	25° $\overline{50}$ 00'45	29.01939 AU	behind sun begin	1428 Jul 23 j 21:19	9° $\overline{05}$ 25'00	
direct	1422 Mar 26 j 12:39	23° $\overline{53}$ 36'14		behind sun end	1428 Jul 24 j 09:21	9° $\overline{05}$ 26'04	
				max. Earth dist.	1428 Jul 23 j 14:15	9° $\overline{05}$ 24'20	31.06755 AU
conjunction	1422 Jul 10 j 19:20	26° $\overline{50}$ 07'48	0°-17'-6	retrograde	1428 Nov 05 j 03:26	11° $\overline{05}$ 54'38	
minimum elong	1422 Jul 10 j 19:20	26° $\overline{50}$ 07'48	0°17'07	opposition	1429 Jan 21 j 12:23	10° $\overline{06}$ 31'36	0°09'53
max. Earth dist.	1422 Jul 10 j 11:47	26° $\overline{50}$ 07'07	31.02326 AU	min. Earth dist.	1429 Jan 21 j 23:38	10° $\overline{06}$ 30'49	29.07271 AU
retrograde	1422 Oct 23 j 11:33	28° $\overline{53}$ 37'55		direct	1429 Apr 11 j 00:15	9° $\overline{06}$ 06'22	
opposition	1423 Jan 08 j 23:20	27° $\overline{51}$ 14'36	0°-16'-7				
min. Earth dist.	1423 Jan 09 j 07:01	27° $\overline{51}$ 14'03	29.02703 AU	conjunction	1429 Jul 26 j 16:19	11° $\overline{06}$ 38'03	0°11'20
direct	1423 Mar 29 j 02:25	25° $\overline{49}$ 49'36		minimum elong	1429 Jul 26 j 16:19	11° $\overline{06}$ 38'03	0°11'19
				behind sun begin	1429 Jul 26 j 11:34	11° $\overline{06}$ 37'37	
conjunction	1423 Jul 13 j 09:00	28° $\overline{52}$ 21'12	0°-13'-4	behind sun end	1429 Jul 26 j 21:04	11° $\overline{06}$ 38'28	
minimum elong	1423 Jul 13 j 08:59	28° $\overline{52}$ 21'12	0°13'06	max. Earth dist.	1429 Jul 26 j 03:39	11° $\overline{06}$ 36'53	31.07790 AU
behind sun begin	1423 Jul 13 j 05:11	28° $\overline{52}$ 20'51		retrograde	1429 Nov 07 j 13:31	12° $\overline{07}$ 07'00	
behind sun end	1423 Jul 13 j 12:48	28° $\overline{52}$ 21'32		opposition	1430 Jan 23 j 22:33	12° $\overline{07}$ 44'04	0°14'12
max. Earth dist.	1423 Jul 12 j 23:17	28° $\overline{52}$ 20'18	31.03057 AU	min. Earth dist.	1430 Jan 24 j 10:08	12° $\overline{07}$ 43'15	29.08347 AU
	1423 Aug 30 j 14:29	0° $\overline{02}$		direct	1430 Apr 13 j 12:00	11° $\overline{07}$ 18'51	

conjunction	1430 Jul 29 j 05:16	13°♏50'33	0°15'21	min. Earth dist.	1438 Feb 11 j 02:21	0°♐21'30	29.15813 AU
minimum elong	1430 Jul 29 j 05:15	13°♏50'33	0°15'21		1438 Feb 24 j 02:05	30°♐♏	
behind sun begin	1430 Jul 29 j 03:40	13°♏50'25		direct	1438 May 01 j 12:34	28°♏57'25	
behind sun end	1430 Jul 29 j 06:51	13°♏50'42			1438 Jul 04 j 16:07	0°♐	
max. Earth dist.	1430 Jul 28 j 14:58	13°♏49'14	31.08913 AU				
	1430 Aug 30 j 14:08	15°♏		conjunction	1438 Aug 16 j 10:48	1°♐29'06	0°46'10
retrograde	1430 Nov 10 j 01:15	16°♏19'24		minimum elong	1438 Aug 16 j 10:48	1°♐29'06	0°46'11
	1431 Jan 24 j 07:31	15°♐♏		max. Earth dist.	1438 Aug 15 j 15:34	1°♐27'19	31.16110 AU
opposition	1431 Jan 26 j 08:38	14°♏56'33	0°18'29	retrograde	1438 Nov 27 j 12:49	3°♐56'50	
min. Earth dist.	1431 Jan 26 j 20:41	14°♏55'43	29.09505 AU	opposition	1439 Feb 12 j 19:15	2°♐34'22	0°51'13
direct	1431 Apr 15 j 23:11	13°♏31'21		min. Earth dist.	1439 Feb 13 j 13:00	2°♐33'08	29.16486 AU
	1431 Jul 02 j 12:45	15°♏		direct	1439 May 04 j 00:47	1°♐09'02	
conjunction	1431 Jul 31 j 18:19	16°♏03'07	0°19'21	conjunction	1439 Aug 18 j 22:54	3°♐40'41	0°49'46
minimum elong	1431 Jul 31 j 18:19	16°♏03'07	0°19'20	minimum elong	1439 Aug 18 j 22:54	3°♐40'41	0°49'45
max. Earth dist.	1431 Jul 31 j 04:31	16°♏01'51	31.10074 AU	max. Earth dist.	1439 Aug 18 j 02:21	3°♐38'46	31.16809 AU
retrograde	1431 Nov 12 j 11:54	18°♏31'51		retrograde	1439 Nov 29 j 23:29	6°♐08'18	
opposition	1432 Jan 28 j 18:59	17°♏09'05	0°22'45	opposition	1440 Feb 15 j 05:38	4°♐45'51	0°55'01
min. Earth dist.	1432 Jan 29 j 08:15	17°♏08'10	29.10659 AU	min. Earth dist.	1440 Feb 15 j 23:21	4°♐44'36	29.17238 AU
direct	1432 Apr 17 j 12:25	15°♏43'55		direct	1440 May 05 j 11:50	3°♐20'30	
conjunction	1432 Aug 02 j 07:00	18°♏15'42	0°23'19	conjunction	1440 Aug 20 j 10:53	5°♐52'07	0°53'17
minimum elong	1432 Aug 02 j 07:00	18°♏15'42	0°23'20	minimum elong	1440 Aug 20 j 10:52	5°♐52'07	0°53'17
max. Earth dist.	1432 Aug 01 j 15:23	18°♏14'16	31.11208 AU	max. Earth dist.	1440 Aug 19 j 15:21	5°♐50'18	31.17599 AU
retrograde	1432 Nov 13 j 23:58	20°♏44'19		retrograde	1440 Dec 01 j 08:56	8°♐19'37	
opposition	1433 Jan 30 j 05:14	19°♏21'38	0°26'58	opposition	1441 Feb 16 j 16:06	6°♐57'12	0°58'44
min. Earth dist.	1433 Jan 30 j 18:27	19°♏20'43	29.11764 AU	min. Earth dist.	1441 Feb 17 j 10:31	6°♐55'55	29.18082 AU
direct	1433 Apr 20 j 00:33	17°♏56'28		direct	1441 May 08 j 00:20	5°♐31'53	
conjunction	1433 Aug 04 j 19:58	20°♏28'17	0°27'15	conjunction	1441 Aug 22 j 22:46	8°♐03'29	0°56'43
minimum elong	1433 Aug 04 j 19:58	20°♏28'17	0°27'14	minimum elong	1441 Aug 22 j 22:46	8°♐03'29	0°56'42
max. Earth dist.	1433 Aug 04 j 04:14	20°♏26'50	31.12255 AU	max. Earth dist.	1441 Aug 22 j 02:02	8°♐01'34	31.18505 AU
retrograde	1433 Nov 16 j 10:33	22°♏56'46		retrograde	1441 Dec 03 j 20:31	10°♐30'54	
opposition	1434 Feb 01 j 15:34	21°♏34'09	0°31'09	opposition	1442 Feb 19 j 02:19	9°♐08'34	1°02'22
min. Earth dist.	1434 Feb 02 j 06:36	21°♏33'06	29.12765 AU	min. Earth dist.	1442 Feb 19 j 20:03	9°♐07'19	29.19047 AU
direct	1434 Apr 22 j 12:48	20°♏08'59		direct	1442 May 10 j 11:46	7°♐43'15	
conjunction	1434 Aug 07 j 08:47	22°♏40'47	0°31'09	conjunction	1442 Aug 25 j 10:48	10°♐14'53	1°00'05
minimum elong	1434 Aug 07 j 08:46	22°♏40'47	0°31'09	minimum elong	1442 Aug 25 j 10:48	10°♐14'53	1°00'05
max. Earth dist.	1434 Aug 06 j 15:32	22°♏39'12	31.13202 AU	max. Earth dist.	1442 Aug 24 j 14:40	10°♐13'01	31.19508 AU
retrograde	1434 Nov 18 j 22:55	25°♏09'07		retrograde	1442 Dec 06 j 06:58	12°♐42'14	
opposition	1435 Feb 04 j 01:52	23°♏46'33	0°35'18	opposition	1443 Feb 21 j 12:53	11°♐19'59	1°05'54
min. Earth dist.	1435 Feb 04 j 16:45	23°♏45'31	29.13650 AU	min. Earth dist.	1443 Feb 22 j 07:51	11°♐18'40	29.20090 AU
direct	1435 Apr 25 j 02:17	22°♏21'22		direct	1443 May 12 j 23:51	9°♐54'45	
conjunction	1435 Aug 09 j 21:27	24°♏53'09	0°34'59	conjunction	1443 Aug 27 j 22:30	12°♐26'23	1°03'21
minimum elong	1435 Aug 09 j 21:27	24°♏53'09	0°34'59	minimum elong	1443 Aug 27 j 22:30	12°♐26'23	1°03'21
max. Earth dist.	1435 Aug 09 j 03:35	24°♏51'30	31.14023 AU	max. Earth dist.	1443 Aug 27 j 01:36	12°♐24'27	31.20574 AU
retrograde	1435 Nov 21 j 08:24	27°♏21'21		retrograde	1443 Dec 08 j 19:23	14°♐53'41	
opposition	1436 Feb 06 j 12:21	25°♏58'49	0°39'22	opposition	1444 Feb 23 j 23:22	13°♐31'30	1°09'21
min. Earth dist.	1436 Feb 07 j 04:53	25°♏57'39	29.14434 AU	min. Earth dist.	1444 Feb 24 j 17:42	13°♐30'14	29.21158 AU
direct	1436 Apr 26 j 13:22	24°♏33'36		direct	1444 May 14 j 13:07	12°♐06'20	
conjunction	1436 Aug 11 j 10:02	27°♏05'21	0°38'47	conjunction	1444 Aug 29 j 10:21	14°♐38'00	1°06'31
minimum elong	1436 Aug 11 j 10:02	27°♏05'21	0°38'47	minimum elong	1444 Aug 29 j 10:20	14°♐38'00	1°06'32
max. Earth dist.	1436 Aug 10 j 15:41	27°♏03'39	31.14767 AU	max. Earth dist.	1444 Aug 28 j 13:16	14°♐36'02	31.21621 AU
retrograde	1436 Nov 22 j 17:54	29°♏33'22		retrograde	1444 Dec 10 j 05:16	17°♐05'15	
opposition	1437 Feb 07 j 22:35	28°♏10'52	0°43'23	opposition	1445 Feb 25 j 09:58	15°♐43'09	1°12'42
min. Earth dist.	1437 Feb 08 j 15:01	28°♏09'43	29.15139 AU	min. Earth dist.	1445 Feb 26 j 05:43	15°♐41'47	29.22192 AU
direct	1437 Apr 29 j 02:28	26°♏45'37		direct	1445 May 16 j 23:56	14°♐18'02	
conjunction	1437 Aug 13 j 22:25	29°♏17'20	0°42'30	conjunction	1445 Aug 31 j 22:08	16°♐49'42	1°09'36
minimum elong	1437 Aug 13 j 22:24	29°♏17'20	0°42'30	minimum elong	1445 Aug 31 j 22:08	16°♐49'42	1°09'36
max. Earth dist.	1437 Aug 13 j 02:48	29°♏15'31	31.15444 AU	max. Earth dist.	1445 Aug 31 j 00:48	16°♐47'43	31.22608 AU
	1437 Sep 02 j 08:19	0°♐		retrograde	1445 Dec 12 j 15:03	19°♐16'54	
retrograde	1437 Nov 25 j 03:51	1°♐45'13		opposition	1446 Feb 27 j 20:39	17°♐54'53	1°15'56
opposition	1438 Feb 10 j 08:57	0°♐22'43	0°47'20	min. Earth dist.	1446 Feb 28 j 16:14	17°♐53'31	29.23118 AU

direct	1446 May 19 j 12:56	16° $\overline{11}$ 29'48		opposition	1454 Mar 17 j 11:23	5° $\underline{25}$ '06	1°37'27
max. Earth dist.	1446 Sep 02 j 11:21	18° $\overline{11}$ 59'22	31.23461 AU	min. Earth dist.	1454 Mar 18 j 09:19	5° $\underline{23}$ '35	29.27211 AU
				direct	1454 Jun 06 j 11:10	4° $\underline{00}$ '00	
conjunction	1446 Sep 03 j 09:53	19° $\overline{11}$ 01'28	1°12'35	max. Earth dist.	1454 Sep 20 j 04:39	6° $\underline{29}$ '03	31.27398 AU
minimum elong	1446 Sep 03 j 09:52	19° $\overline{11}$ 01'28	1°12'35				
retrograde	1446 Dec 15 j 01:28	21° $\overline{11}$ 28'35		conjunction	1454 Sep 21 j 03:30	6° $\underline{31}$ '11	1°32'14
opposition	1447 Mar 02 j 07:25	20° $\overline{11}$ 06'38	1°19'03	minimum elong	1454 Sep 21 j 03:29	6° $\underline{31}$ '11	1°32'15
min. Earth dist.	1447 Mar 03 j 03:53	20° $\overline{11}$ 05'13	29.23920 AU	retrograde	1455 Jan 01 j 08:58	8° $\underline{57}$ '44	
direct	1447 May 21 j 22:58	18° $\overline{11}$ 41'34		opposition	1455 Mar 19 j 22:21	7° $\underline{35}$ '47	1°39'32
				min. Earth dist.	1455 Mar 20 j 19:25	7° $\underline{34}$ '20	29.27803 AU
conjunction	1447 Sep 05 j 21:37	21° $\overline{11}$ 13'12	1°15'27	direct	1455 Jun 09 j 00:27	6° $\underline{10}$ '45	
minimum elong	1447 Sep 05 j 21:37	21° $\overline{11}$ 13'12	1°15'27				
max. Earth dist.	1447 Sep 04 j 23:25	21° $\overline{11}$ 11'08	31.24188 AU	conjunction	1455 Sep 23 j 14:13	8° $\underline{41}$ '53	1°34'08
retrograde	1447 Dec 17 j 10:23	23° $\overline{11}$ 40'15		minimum elong	1455 Sep 23 j 14:13	8° $\underline{41}$ '53	1°34'08
opposition	1448 Mar 03 j 18:18	22° $\overline{11}$ 18'20	1°22'04	max. Earth dist.	1455 Sep 22 j 14:56	8° $\underline{39}$ '43	31.28021 AU
min. Earth dist.	1448 Mar 04 j 15:13	22° $\overline{11}$ 16'53	29.24574 AU	retrograde	1456 Jan 03 j 19:47	11° $\underline{08}$ '26	
direct	1448 May 23 j 11:17	20° $\overline{11}$ 53'17		opposition	1456 Mar 21 j 09:26	9° $\underline{46}$ '31	1°41'29
max. Earth dist.	1448 Sep 06 j 09:18	23° $\overline{11}$ 22'39	31.24775 AU	min. Earth dist.	1456 Mar 22 j 06:40	9° $\underline{45}$ '04	29.28458 AU
				direct	1456 Jun 10 j 10:59	8° $\underline{21}$ '32	
conjunction	1448 Sep 07 j 08:59	23° $\overline{11}$ 24'51	1°18'13	max. Earth dist.	1456 Sep 24 j 02:37	10° $\underline{50}$ '34	31.28671 AU
minimum elong	1448 Sep 07 j 08:59	23° $\overline{11}$ 24'51	1°18'13				
retrograde	1448 Dec 18 j 20:28	25° $\overline{11}$ 51'50		conjunction	1456 Sep 25 j 00:53	10° $\underline{52}$ '39	1°35'53
opposition	1449 Mar 06 j 05:05	24° $\overline{11}$ 29'55	1°24'57	minimum elong	1456 Sep 25 j 00:52	10° $\underline{52}$ '39	1°35'53
min. Earth dist.	1449 Mar 07 j 02:08	24° $\overline{11}$ 28'27	29.25109 AU	retrograde	1457 Jan 05 j 04:32	13° $\underline{19}$ '12	
direct	1449 May 25 j 22:17	23° $\overline{11}$ 04'51		opposition	1457 Mar 23 j 20:34	11° $\underline{57}$ '20	1°43'17
				min. Earth dist.	1457 Mar 24 j 17:56	11° $\underline{55}$ '52	29.29083 AU
conjunction	1449 Sep 09 j 20:32	25° $\overline{11}$ 36'23	1°20'51	direct	1457 Jun 12 j 23:25	10° $\underline{32}$ '25	
minimum elong	1449 Sep 09 j 20:32	25° $\overline{11}$ 36'22	1°20'51				
max. Earth dist.	1449 Sep 08 j 21:34	25° $\overline{11}$ 34'14	31.25243 AU	conjunction	1457 Sep 27 j 11:30	13° $\underline{03}$ '29	1°37'30
retrograde	1449 Dec 21 j 05:09	28° $\overline{11}$ 03'16		minimum elong	1457 Sep 27 j 11:30	13° $\underline{03}$ '29	1°37'29
opposition	1450 Mar 08 j 15:51	26° $\overline{11}$ 41'20	1°27'43	max. Earth dist.	1457 Sep 26 j 12:09	13° $\underline{01}$ '18	31.29267 AU
min. Earth dist.	1450 Mar 09 j 13:56	26° $\overline{11}$ 39'48	29.25528 AU	retrograde	1458 Jan 07 j 14:52	15° $\underline{30}$ '03	
direct	1450 May 28 j 10:13	25° $\overline{11}$ 16'15		opposition	1458 Mar 26 j 07:40	14° $\underline{08}$ '13	1°44'56
max. Earth dist.	1450 Sep 11 j 07:36	27° $\overline{11}$ 45'27	31.25631 AU	min. Earth dist.	1458 Mar 27 j 04:48	14° $\underline{06}$ '46	29.29647 AU
				direct	1458 Jun 15 j 09:45	12° $\underline{43}$ '21	
conjunction	1450 Sep 12 j 07:46	27° $\overline{11}$ 47'42	1°23'23				
minimum elong	1450 Sep 12 j 07:46	27° $\overline{11}$ 47'42	1°23'23	conjunction	1458 Sep 29 j 22:16	15° $\underline{14}$ '24	1°38'58
	1450 Nov 24 j 13:51	0° $\underline{00}$		minimum elong	1458 Sep 29 j 22:16	15° $\underline{14}$ '24	1°38'58
retrograde	1450 Dec 23 j 16:15	0° $\underline{14}$ '30		max. Earth dist.	1458 Sep 28 j 23:58	15° $\underline{12}$ '19	31.29769 AU
	1451 Jan 22 j 08:13	30° $\overline{11}$		retrograde	1459 Jan 09 j 23:51	17° $\underline{40}$ '59	
opposition	1451 Mar 11 j 02:40	28° $\overline{11}$ 52'33	1°30'21	opposition	1459 Mar 28 j 19:08	16° $\underline{19}$ '10	1°46'25
min. Earth dist.	1451 Mar 12 j 00:01	28° $\overline{11}$ 51'05	29.25898 AU	min. Earth dist.	1459 Mar 29 j 17:04	16° $\underline{17}$ '40	29.30089 AU
direct	1451 May 30 j 21:30	27° $\overline{11}$ 27'27		direct	1459 Jun 17 j 21:01	14° $\underline{54}$ '22	
				max. Earth dist.	1459 Oct 01 j 09:23	17° $\underline{23}$ '10	31.30147 AU
conjunction	1451 Sep 14 j 18:50	29° $\overline{11}$ 58'49	1°25'47				
minimum elong	1451 Sep 14 j 18:50	29° $\overline{11}$ 58'49	1°25'47	conjunction	1459 Oct 02 j 08:41	17° $\underline{25}$ '21	1°40'18
max. Earth dist.	1451 Sep 13 j 19:27	29° $\overline{11}$ 56'38	31.25982 AU	minimum elong	1459 Oct 02 j 08:41	17° $\underline{25}$ '21	1°40'17
	1451 Sep 15 j 07:37	0° $\underline{00}$		retrograde	1460 Jan 12 j 11:11	19° $\underline{51}$ '56	
retrograde	1451 Dec 26 j 02:01	2° $\underline{25}$ '33		opposition	1460 Mar 30 j 06:28	18° $\underline{30}$ '09	1°47'46
opposition	1452 Mar 12 j 13:38	1° $\underline{03}$ '34	1°32'51	min. Earth dist.	1460 Mar 31 j 03:32	18° $\underline{28}$ '42	29.30402 AU
min. Earth dist.	1452 Mar 13 j 11:58	1° $\underline{02}$ '01	29.26266 AU	direct	1460 Jun 19 j 07:56	17° $\underline{05}$ '22	
	1452 Apr 24 j 23:00	30° $\overline{11}$					
direct	1452 Jun 01 j 10:25	29° $\overline{11}$ 38'27		conjunction	1460 Oct 03 j 19:19	19° $\underline{36}$ '18	1°41'29
	1452 Jul 08 j 07:57	0° $\underline{00}$		minimum elong	1460 Oct 03 j 19:18	19° $\underline{36}$ '18	1°41'29
max. Earth dist.	1452 Sep 15 j 06:01	2° $\underline{07}$ '31	31.26374 AU	max. Earth dist.	1460 Oct 02 j 20:36	19° $\underline{34}$ '11	31.30379 AU
				retrograde	1461 Jan 13 j 21:15	22° $\underline{02}$ '54	
conjunction	1452 Sep 16 j 05:45	2° $\underline{09}$ '43	1°28'04	opposition	1461 Apr 01 j 17:51	20° $\underline{41}$ '06	1°48'58
minimum elong	1452 Sep 16 j 05:44	2° $\underline{09}$ '43	1°28'04	min. Earth dist.	1461 Apr 02 j 16:04	20° $\underline{39}$ '34	29.30569 AU
retrograde	1452 Dec 27 j 13:30	4° $\underline{36}$ '23		direct	1461 Jun 21 j 20:17	19° $\underline{16}$ '20	
opposition	1453 Mar 15 j 00:22	3° $\underline{14}$ '23	1°35'13	max. Earth dist.	1461 Oct 05 j 06:34	21° $\underline{45}$ '02	31.30484 AU
min. Earth dist.	1453 Mar 15 j 21:37	3° $\underline{12}$ '55	29.26693 AU				
direct	1453 Jun 03 j 23:56	1° $\underline{49}$ '16		conjunction	1461 Oct 06 j 05:46	21° $\underline{47}$ '12	1°42'31
				minimum elong	1461 Oct 06 j 05:46	21° $\underline{47}$ '12	1°42'31
conjunction	1453 Sep 18 j 16:41	4° $\underline{20}$ '29	1°30'13	retrograde	1462 Jan 16 j 08:56	24° $\underline{13}$ '47	
minimum elong	1453 Sep 18 j 16:41	4° $\underline{20}$ '29	1°30'13	opposition	1462 Apr 04 j 05:14	22° $\underline{51}$ '58	1°50'00
max. Earth dist.	1453 Sep 17 j 17:16	4° $\underline{18}$ '19	31.26835 AU	min. Earth dist.	1462 Apr 05 j 02:31	22° $\underline{50}$ '31	29.30605 AU
retrograde	1453 Dec 29 j 23:11	6° $\underline{47}$ '06		direct	1462 Jun 24 j 09:36	21° $\underline{27}$ '13	

conjunction	1462 Oct 08 j 16:04	23° $\underline{\text{A}}$ 58'01	1°43'25	conjunction	1470 Oct 25 j 22:57	11° M 22'05	1°45'12
minimum elong	1462 Oct 08 j 16:04	23° $\underline{\text{A}}$ 58'01	1°43'26	minimum elong	1470 Oct 25 j 22:58	11° M 22'05	1°45'12
max. Earth dist.	1462 Oct 07 j 17:02	23° $\underline{\text{A}}$ 55'52	31.30463 AU	max. Earth dist.	1470 Oct 25 j 04:12	11° M 20'19	31.31175 AU
retrograde	1463 Jan 18 j 18:48	26° $\underline{\text{A}}$ 24'36		retrograde	1471 Feb 05 j 03:10	13° M 48'56	
opposition	1463 Apr 06 j 16:48	25° $\underline{\text{A}}$ 02'44	1°50'52	opposition	1471 Apr 24 j 13:56	12° M 27'01	1°52'09
min. Earth dist.	1463 Apr 07 j 14:50	25° $\underline{\text{A}}$ 01'14	29.30554 AU	min. Earth dist.	1471 Apr 25 j 07:20	12° M 25'50	29.31345 AU
direct	1463 Jun 26 j 20:56	23° $\underline{\text{A}}$ 37'59		direct	1471 Jul 14 j 18:06	11° M 02'37	
max. Earth dist.	1463 Oct 10 j 03:58	26° $\underline{\text{A}}$ 06'37	31.30390 AU				
conjunction	1463 Oct 11 j 02:16	26° $\underline{\text{A}}$ 08'42	1°44'10	conjunction	1471 Oct 28 j 08:45	13° M 32'48	1°44'44
minimum elong	1463 Oct 11 j 02:16	26° $\underline{\text{A}}$ 08'42	1°44'10	minimum elong	1471 Oct 28 j 08:45	13° M 32'48	1°44'44
retrograde	1464 Jan 21 j 04:36	28° $\underline{\text{A}}$ 35'15		max. Earth dist.	1471 Oct 27 j 14:13	13° M 31'04	31.31257 AU
opposition	1464 Apr 08 j 04:14	27° $\underline{\text{A}}$ 13'21	1°51'36		1471 Dec 08 j 16:21	15° M	
min. Earth dist.	1464 Apr 09 j 01:19	27° $\underline{\text{A}}$ 11'55	29.30465 AU	retrograde	1472 Feb 07 j 14:00	15° M 59'44	
direct	1464 Jun 28 j 10:51	25° $\underline{\text{A}}$ 48'37			1472 Apr 12 j 06:20	15° R M	
conjunction	1464 Oct 12 j 12:11	28° $\underline{\text{A}}$ 19'14	1°44'46	opposition	1472 Apr 26 j 01:59	14° M 37'47	1°51'35
minimum elong	1464 Oct 12 j 12:10	28° $\underline{\text{A}}$ 19'14	1°44'46	min. Earth dist.	1472 Apr 26 j 19:59	14° M 36'34	29.31381 AU
max. Earth dist.	1464 Oct 11 j 13:38	28° $\underline{\text{A}}$ 17'07	31.30307 AU	direct	1472 Jul 16 j 04:44	13° M 13'27	
	1464 Nov 30 j 19:07	0° M			1472 Oct 10 j 03:46	15° M	
retrograde	1465 Jan 22 j 15:31	0° M 45'47		conjunction	1472 Oct 29 j 18:30	15° M 43'33	1°44'08
	1465 Mar 18 j 19:21	30° R $\underline{\text{A}}$		minimum elong	1472 Oct 29 j 18:30	15° M 43'33	1°44'08
opposition	1465 Apr 10 j 15:43	29° $\underline{\text{A}}$ 23'51	1°52'10	max. Earth dist.	1472 Oct 29 j 00:47	15° M 41'53	31.31229 AU
min. Earth dist.	1465 Apr 11 j 12:35	29° $\underline{\text{A}}$ 22'25	29.30415 AU	retrograde	1473 Feb 09 j 00:47	18° M 10'32	
direct	1465 Jun 30 j 22:25	27° $\underline{\text{A}}$ 59'06		opposition	1473 Apr 28 j 14:01	16° M 48'34	1°50'51
	1465 Oct 01 j 15:19	0° M		min. Earth dist.	1473 Apr 29 j 07:09	16° M 47'24	29.31269 AU
conjunction	1465 Oct 14 j 22:11	0° M 29'39	1°45'13	direct	1473 Jul 18 j 18:49	15° M 24'16	
minimum elong	1465 Oct 14 j 22:11	0° M 29'39	1°45'12	max. Earth dist.	1473 Oct 31 j 09:53	17° M 52'35	31.31048 AU
max. Earth dist.	1465 Oct 14 j 01:08	0° M 27'41	31.30286 AU	conjunction	1473 Nov 01 j 04:10	17° M 54'18	1°43'23
retrograde	1466 Jan 24 j 23:43	2° M 56'13		minimum elong	1473 Nov 01 j 04:10	17° M 54'18	1°43'22
opposition	1466 Apr 13 j 03:13	1° M 34'16	1°52'34	retrograde	1474 Feb 11 j 12:35	20° M 21'19	
min. Earth dist.	1466 Apr 13 j 23:35	1° M 32'52	29.30431 AU	opposition	1474 May 01 j 02:07	18° M 59'19	1°49'58
direct	1466 Jul 03 j 11:17	0° M 09'33		min. Earth dist.	1474 May 01 j 19:10	18° M 58'09	29.31025 AU
max. Earth dist.	1466 Oct 16 j 10:32	2° M 38'00	31.30361 AU	direct	1474 Jul 21 j 06:38	17° M 35'01	
conjunction	1466 Oct 17 j 07:59	2° M 40'01	1°45'31	conjunction	1474 Nov 03 j 13:56	20° M 04'58	1°42'29
minimum elong	1466 Oct 17 j 07:59	2° M 40'01	1°45'31	minimum elong	1474 Nov 03 j 13:56	20° M 04'58	1°42'29
retrograde	1467 Jan 27 j 09:34	5° M 06'37		max. Earth dist.	1474 Nov 02 j 20:59	20° M 03'22	31.30743 AU
opposition	1467 Apr 15 j 14:49	3° M 44'39	1°52'48	retrograde	1475 Feb 13 j 21:21	22° M 32'02	
min. Earth dist.	1467 Apr 16 j 10:05	3° M 43'20	29.30562 AU	opposition	1475 May 03 j 14:21	21° M 09'59	1°48'56
direct	1467 Jul 05 j 21:41	2° M 20'00		min. Earth dist.	1475 May 04 j 07:06	21° M 08'50	29.30654 AU
conjunction	1467 Oct 19 j 17:44	4° M 50'24	1°45'40	direct	1475 Jul 23 j 19:50	19° M 45'42	
minimum elong	1467 Oct 19 j 17:44	4° M 50'24	1°45'39	conjunction	1475 Nov 05 j 23:17	22° M 15'32	1°41'26
max. Earth dist.	1467 Oct 18 j 22:05	4° M 48'34	31.30532 AU	minimum elong	1475 Nov 05 j 23:18	22° M 15'32	1°41'26
retrograde	1468 Jan 29 j 18:17	7° M 17'04		max. Earth dist.	1475 Nov 05 j 05:51	22° M 13'53	31.30337 AU
opposition	1468 Apr 17 j 02:34	5° M 55'06	1°52'53	retrograde	1476 Feb 16 j 07:46	22° M 42'39	
min. Earth dist.	1468 Apr 17 j 22:00	5° M 53'47	29.30762 AU	opposition	1476 May 05 j 02:29	23° M 20'31	1°47'45
direct	1468 Jul 07 j 08:30	4° M 30'31		min. Earth dist.	1476 May 05 j 18:16	23° M 19'27	29.30218 AU
max. Earth dist.	1468 Oct 20 j 07:29	6° M 58'59	31.30764 AU	direct	1476 Jul 25 j 07:15	21° M 56'15	
conjunction	1468 Oct 21 j 03:26	7° M 00'52	1°45'40	conjunction	1476 Nov 07 j 08:50	24° M 25'58	1°40'15
minimum elong	1468 Oct 21 j 03:26	7° M 00'52	1°45'40	minimum elong	1476 Nov 07 j 08:50	24° M 25'59	1°40'15
retrograde	1469 Jan 31 j 05:26	9° M 27'35		max. Earth dist.	1476 Nov 06 j 17:05	24° M 24'30	31.29882 AU
opposition	1469 Apr 19 j 14:03	8° M 05'39	1°52'48	retrograde	1477 Feb 17 j 16:30	26° M 53'09	
min. Earth dist.	1469 Apr 20 j 08:06	8° M 04'25	29.31000 AU	opposition	1477 May 07 j 14:36	25° M 30'57	1°46'24
direct	1469 Jul 09 j 18:56	6° M 41'07		min. Earth dist.	1477 May 08 j 06:30	25° M 29'52	29.29761 AU
conjunction	1469 Oct 23 j 13:18	9° M 11'25	1°45'30	direct	1477 Jul 27 j 19:02	24° M 06'41	
minimum elong	1469 Oct 23 j 13:18	9° M 11'25	1°45'30	conjunction	1477 Nov 09 j 18:10	26° M 36'19	1°38'55
max. Earth dist.	1469 Oct 22 j 18:23	9° M 09'39	31.30990 AU	minimum elong	1477 Nov 09 j 18:10	26° M 36'19	1°38'55
retrograde	1470 Feb 02 j 15:33	11° M 38'13		max. Earth dist.	1477 Nov 09 j 02:28	26° M 34'50	31.29453 AU
opposition	1470 Apr 22 j 02:01	10° M 16'17	1°52'33	retrograde	1478 Feb 20 j 03:27	29° M 03'33	
min. Earth dist.	1470 Apr 22 j 20:43	10° M 15'01	29.31209 AU	opposition	1478 May 10 j 02:47	27° M 41'19	1°44'54
direct	1470 Jul 12 j 06:14	8° M 51'50		min. Earth dist.	1478 May 10 j 16:48	27° M 40'22	29.29359 AU
				direct	1478 Jul 30 j 06:08	26° M 17'05	

conjunction	1478 Nov 12 j 03:27	28° ℓ 46'37	1°37'27	conjunction	1486 Nov 29 j 06:08	16° ♊ 13'50	1°20'47
minimum elong	1478 Nov 12 j 03:27	28° ℓ 46'38	1°37'27	minimum elong	1486 Nov 29 j 06:08	16° ♊ 13'50	1°20'48
max. Earth dist.	1478 Nov 11 j 13:10	28° ℓ 45'17	31.29087 AU	max. Earth dist.	1486 Nov 28 j 20:55	16° ♊ 12'57	31.26442 AU
	1478 Dec 16 j 01:40	0° ♊		retrograde	1487 Mar 12 j 07:24	18° ♊ 42'10	
retrograde	1479 Feb 22 j 13:27	1° ♊ 13'58		opposition	1487 May 30 j 19:37	17° ♊ 19'43	1°24'55
	1479 May 07 j 12:03	30° ♋		min. Earth dist.	1487 May 31 j 03:29	17° ♊ 19'11	29.26112 AU
opposition	1479 May 12 j 15:12	29° ℓ 51'41	1°43'16	direct	1487 Aug 19 j 14:57	15° ♊ 56'01	
min. Earth dist.	1479 May 13 j 05:15	29° ℓ 50'44	29.29042 AU				
direct	1479 Aug 01 j 16:55	28° ℓ 27'30		conjunction	1487 Dec 01 j 15:36	18° ♊ 25'04	1°18'09
	1479 Oct 19 j 15:35	0° ♊		minimum elong	1487 Dec 01 j 15:36	18° ♊ 25'04	1°18'09
				max. Earth dist.	1487 Dec 01 j 07:17	18° ♊ 24'17	31.25630 AU
conjunction	1479 Nov 14 j 12:45	0° ♊ 56'59	1°35'50	retrograde	1488 Mar 13 j 17:00	20° ♊ 53'31	
minimum elong	1479 Nov 14 j 12:45	0° ♊ 56'59	1°35'50	opposition	1488 Jun 01 j 08:23	19° ♊ 30'58	1°22'02
max. Earth dist.	1479 Nov 13 j 23:16	0° ♊ 55'43	31.28826 AU	min. Earth dist.	1488 Jun 01 j 16:40	19° ♊ 30'25	29.25249 AU
retrograde	1480 Feb 25 j 01:00	3° ♊ 24'27		direct	1488 Aug 21 j 01:53	18° ♊ 07'16	
opposition	1480 May 14 j 03:20	2° ♊ 02'09	1°41'28				
min. Earth dist.	1480 May 14 j 15:31	2° ♊ 01'20	29.28811 AU	conjunction	1488 Dec 03 j 00:54	20° ♊ 36'13	1°15'24
direct	1480 Aug 03 j 03:47	0° ♊ 38'02		minimum elong	1488 Dec 03 j 00:55	20° ♊ 36'13	1°15'24
				max. Earth dist.	1488 Dec 02 j 17:21	20° ♊ 35'30	31.24741 AU
conjunction	1480 Nov 15 j 22:01	3° ♊ 07'29	1°34'05	retrograde	1489 Mar 16 j 03:58	23° ♊ 04'44	
minimum elong	1480 Nov 15 j 22:01	3° ♊ 07'29	1°34'06	opposition	1489 Jun 03 j 21:05	21° ♊ 42'06	1°19'02
max. Earth dist.	1480 Nov 15 j 09:09	3° ♊ 06'16	31.28627 AU	min. Earth dist.	1489 Jun 04 j 03:35	21° ♊ 41'40	29.24325 AU
retrograde	1481 Feb 26 j 12:24	5° ♊ 35'04		direct	1489 Aug 23 j 13:05	20° ♊ 18'23	
opposition	1481 May 16 j 15:44	4° ♊ 12'47	1°39'31				
min. Earth dist.	1481 May 17 j 04:00	4° ♊ 11'57	29.28632 AU	conjunction	1489 Dec 05 j 10:03	22° ♊ 47'13	1°12'32
direct	1481 Aug 05 j 13:45	2° ♊ 48'45		minimum elong	1489 Dec 05 j 10:03	22° ♊ 47'13	1°12'32
				max. Earth dist.	1489 Dec 05 j 03:04	22° ♊ 46'33	31.23813 AU
conjunction	1481 Nov 18 j 07:18	5° ♊ 18'09	1°32'12	retrograde	1490 Mar 18 j 15:24	25° ♊ 15'51	
minimum elong	1481 Nov 18 j 07:18	5° ♊ 18'09	1°32'11	opposition	1490 Jun 06 j 09:58	23° ♊ 53'06	1°15'56
max. Earth dist.	1481 Nov 17 j 19:53	5° ♊ 17'05	31.28460 AU	min. Earth dist.	1490 Jun 06 j 16:21	23° ♊ 52'41	29.23419 AU
retrograde	1482 Feb 28 j 23:55	7° ♊ 45'52		direct	1490 Aug 25 j 23:37	22° ♊ 29'23	
opposition	1482 May 19 j 04:08	6° ♊ 23'35	1°37'26				
min. Earth dist.	1482 May 19 j 15:04	6° ♊ 22'51	29.28446 AU	conjunction	1490 Dec 07 j 19:20	24° ♊ 58'08	1°09'35
direct	1482 Aug 08 j 03:08	4° ♊ 59'39		minimum elong	1490 Dec 07 j 19:20	24° ♊ 58'08	1°09'35
				max. Earth dist.	1490 Dec 07 j 14:10	24° ♊ 57'38	31.22943 AU
conjunction	1482 Nov 20 j 16:34	7° ♊ 29'01	1°30'10	retrograde	1491 Mar 21 j 02:52	27° ♊ 26'52	
minimum elong	1482 Nov 20 j 16:34	7° ♊ 29'01	1°30'10	opposition	1491 Jun 08 j 22:44	26° ♊ 04'02	1°12'43
max. Earth dist.	1482 Nov 20 j 04:59	7° ♊ 27'56	31.28266 AU	min. Earth dist.	1491 Jun 09 j 03:23	26° ♊ 03'43	29.22580 AU
retrograde	1483 Mar 03 j 13:04	9° ♊ 56'53		direct	1491 Aug 28 j 12:26	24° ♊ 40'20	
opposition	1483 May 21 j 16:44	8° ♊ 34'35	1°35'12				
min. Earth dist.	1483 May 22 j 03:13	8° ♊ 33'52	29.28230 AU	conjunction	1491 Dec 10 j 04:26	27° ♊ 09'00	1°06'31
direct	1483 Aug 10 j 14:16	7° ♊ 10'43		minimum elong	1491 Dec 10 j 04:26	27° ♊ 09'00	1°06'31
				max. Earth dist.	1491 Dec 09 j 23:22	27° ♊ 08'31	31.22155 AU
conjunction	1483 Nov 23 j 01:55	9° ♊ 40'04	1°28'00	retrograde	1492 Mar 22 j 15:57	29° ♊ 37'52	
minimum elong	1483 Nov 23 j 01:55	9° ♊ 40'04	1°28'00	opposition	1492 Jun 10 j 11:33	28° ♊ 14'58	1°09'23
max. Earth dist.	1483 Nov 22 j 15:58	9° ♊ 39'08	31.28007 AU	min. Earth dist.	1492 Jun 10 j 15:18	28° ♊ 14'43	29.21841 AU
retrograde	1484 Mar 04 j 22:42	12° ♊ 08'03		direct	1492 Aug 29 j 22:48	26° ♊ 51'18	
opposition	1484 May 23 j 05:23	10° ♊ 45'45	1°32'49				
min. Earth dist.	1484 May 23 j 15:27	10° ♊ 45'04	29.27907 AU	conjunction	1492 Dec 11 j 13:45	29° ♊ 19'55	1°03'21
direct	1484 Aug 12 j 02:49	9° ♊ 21'58		minimum elong	1492 Dec 11 j 13:46	29° ♊ 19'55	1°03'22
				max. Earth dist.	1492 Dec 11 j 10:44	29° ♊ 19'38	31.21456 AU
conjunction	1484 Nov 24 j 11:16	11° ♊ 51'15	1°25'43		1492 Dec 29 j 10:03	0° ♊	
minimum elong	1484 Nov 24 j 11:16	11° ♊ 51'15	1°25'43	retrograde	1493 Mar 25 j 02:08	1° ♊ 48'56	
max. Earth dist.	1484 Nov 24 j 00:46	11° ♊ 50'16	31.27631 AU	opposition	1493 Jun 13 j 00:18	0° ♊ 25'59	1°05'58
retrograde	1485 Mar 07 j 10:12	14° ♊ 19'22		min. Earth dist.	1493 Jun 13 j 03:08	0° ♊ 25'48	29.21166 AU
opposition	1485 May 25 j 17:56	12° ♊ 57'02	1°30'19		1493 Jun 29 j 07:20	30° ♋	
min. Earth dist.	1485 May 26 j 03:06	12° ♊ 56'25	29.27463 AU	direct	1493 Sep 01 j 11:11	29° ♊ 02'22	
direct	1485 Aug 14 j 14:42	11° ♊ 33'18			1493 Oct 31 j 20:20	0° ♊	
conjunction	1485 Nov 26 j 20:50	14° ♊ 02'32	1°23'19	conjunction	1493 Dec 13 j 22:57	1° ♊ 30'57	1°00'06
minimum elong	1485 Nov 26 j 20:51	14° ♊ 02'32	1°23'18	minimum elong	1493 Dec 13 j 22:57	1° ♊ 30'57	1°00'06
max. Earth dist.	1485 Nov 26 j 11:46	14° ♊ 01'41	31.27109 AU	max. Earth dist.	1493 Dec 13 j 19:57	1° ♊ 30'40	31.20826 AU
retrograde	1486 Mar 09 j 20:18	16° ♊ 30'46		retrograde	1494 Mar 27 j 15:00	4° ♊ 00'06	
opposition	1486 May 28 j 06:50	15° ♊ 08'23	1°27'40	opposition	1494 Jun 15 j 13:14	2° ♊ 37'09	1°02'26
min. Earth dist.	1486 May 28 j 16:16	15° ♊ 07'45	29.26858 AU	min. Earth dist.	1494 Jun 15 j 14:38	2° ♊ 37'03	29.20553 AU
direct	1486 Aug 17 j 03:11	13° ♊ 44'41		direct	1494 Sep 03 j 22:50	1° ♊ 13'35	

conjunction	1494 Dec 16 j 08:15	3°☾42'08	0°56'45	retrograde	1503 Apr 17 j 02:30	23°☾46'37	
minimum elong	1494 Dec 16 j 08:15	3°☾42'08	0°56'46	opposition	1503 Jul 06 j 10:55	22°☾23'03	0°27'11
max. Earth dist.	1494 Dec 16 j 07:06	3°☾42'02	31.20218 AU	min. Earth dist.	1503 Jul 06 j 05:23	22°☾23'25	29.12165 AU
retrograde	1495 Mar 30 j 02:01	6°☾11'28		direct	1503 Sep 24 j 05:41	20°☾59'42	
opposition	1495 Jun 18 j 02:19	4°☾48'28	0°58'48				
min. Earth dist.	1495 Jun 18 j 03:39	4°☾48'23	29.19939 AU	conjunction	1504 Jan 04 j 22:10	23°☾27'50	0°23'31
direct	1495 Sep 06 j 11:02	3°☾24'59		minimum elong	1504 Jan 04 j 22:11	23°☾27'51	0°23'30
				max. Earth dist.	1504 Jan 05 j 04:03	23°☾28'23	31.11640 AU
conjunction	1495 Dec 18 j 17:38	5°☾53'30	0°53'19	retrograde	1504 Apr 18 j 14:07	25°☾58'32	
minimum elong	1495 Dec 18 j 17:38	5°☾53'30	0°53'19	opposition	1504 Jul 07 j 23:52	24°☾34'53	0°22'59
max. Earth dist.	1495 Dec 18 j 16:44	5°☾53'25	31.19601 AU	min. Earth dist.	1504 Jul 07 j 18:01	24°☾35'17	29.11167 AU
retrograde	1496 Mar 31 j 13:53	8°☾23'00		direct	1504 Sep 25 j 17:54	23°☾11'33	
opposition	1496 Jun 19 j 15:06	6°☾59'59	0°55'06				
min. Earth dist.	1496 Jun 19 j 14:45	7°☾00'01	29.19291 AU	conjunction	1505 Jan 06 j 07:47	25°☾39'40	0°19'34
direct	1496 Sep 07 j 22:21	5°☾36'33		minimum elong	1505 Jan 06 j 07:47	25°☾39'40	0°19'35
				max. Earth dist.	1505 Jan 06 j 14:16	25°☾40'16	31.10711 AU
conjunction	1496 Dec 20 j 03:08	8°☾05'03	0°49'48	retrograde	1505 Apr 21 j 02:07	28°☾10'31	
minimum elong	1496 Dec 20 j 03:09	8°☾05'03	0°49'49	opposition	1505 Jul 10 j 12:51	26°☾46'49	0°18'45
max. Earth dist.	1496 Dec 20 j 03:05	8°☾05'03	31.18910 AU	min. Earth dist.	1505 Jul 10 j 04:55	26°☾47'21	29.10291 AU
retrograde	1497 Apr 03 j 00:27	10°☾34'45		direct	1505 Sep 28 j 05:27	25°☾23'31	
opposition	1497 Jun 22 j 04:16	9°☾11'41	0°51'18				
min. Earth dist.	1497 Jun 22 j 04:18	9°☾11'41	29.18555 AU	conjunction	1506 Jan 08 j 17:21	27°☾51'36	0°15'36
direct	1497 Sep 10 j 09:07	7°☾48'19		minimum elong	1506 Jan 08 j 17:21	27°☾51'36	0°15'36
				behind sun begin	1506 Jan 08 j 15:30	27°☾51'26	
conjunction	1497 Dec 22 j 12:39	10°☾16'47	0°46'13	behind sun end	1506 Jan 08 j 19:12	27°☾51'46	
minimum elong	1497 Dec 22 j 12:39	10°☾16'47	0°46'13	max. Earth dist.	1506 Jan 09 j 01:00	27°☾52'18	31.09881 AU
max. Earth dist.	1497 Dec 22 j 13:24	10°☾16'51	31.18125 AU		1506 Mar 17 j 05:31	0°≈	
retrograde	1498 Apr 05 j 12:11	12°☾46'38		retrograde	1506 Apr 23 j 12:56	0°≈22'37	
opposition	1498 Jun 24 j 17:22	11°☾23'32	0°47'26		1506 Jun 01 j 00:01	30°☾☾	
min. Earth dist.	1498 Jun 24 j 15:43	11°☾23'39	29.17698 AU	opposition	1506 Jul 13 j 02:04	28°☾58'52	0°14'29
direct	1498 Sep 12 j 20:13	10°☾00'12		min. Earth dist.	1506 Jul 12 j 18:05	28°☾59'25	29.09512 AU
				direct	1506 Sep 30 j 16:44	27°☾35'37	
conjunction	1498 Dec 24 j 22:14	12°☾28'37	0°42'34		1507 Jan 09 j 12:27	0°≈	
minimum elong	1498 Dec 24 j 22:14	12°☾28'37	0°42'35				
max. Earth dist.	1498 Dec 24 j 23:03	12°☾28'42	31.17203 AU	conjunction	1507 Jan 11 j 03:09	0°≈03'41	0°11'37
retrograde	1499 Apr 08 j 00:28	14°☾58'39		minimum elong	1507 Jan 11 j 03:09	0°≈03'40	0°11'37
opposition	1499 Jun 27 j 06:34	13°☾35'29	0°43'29	behind sun begin	1507 Jan 10 j 22:31	0°≈03'15	
min. Earth dist.	1499 Jun 27 j 05:13	13°☾35'34	29.16719 AU	behind sun end	1507 Jan 11 j 07:46	0°≈04'06	
direct	1499 Sep 15 j 06:28	12°☾12'09		max. Earth dist.	1507 Jan 11 j 12:05	0°≈04'30	31.09151 AU
				retrograde	1507 Apr 26 j 01:15	2°≈34'52	
conjunction	1499 Dec 27 j 07:56	14°☾40'32	0°38'51	opposition	1507 Jul 15 j 15:02	1°≈11'05	0°10'12
minimum elong	1499 Dec 27 j 07:56	14°☾40'32	0°38'51	min. Earth dist.	1507 Jul 15 j 05:07	1°≈11'45	29.08804 AU
max. Earth dist.	1499 Dec 27 j 10:11	14°☾40'44	31.16165 AU		1507 Sep 05 j 16:49	30°☾☾	
retrograde	1500 Apr 09 j 12:29	17°☾10'41		direct	1507 Oct 03 j 04:10	29°☾47'53	
opposition	1500 Jun 28 j 19:39	15°☾47'26	0°39'29		1507 Oct 29 j 21:51	0°≈	
min. Earth dist.	1500 Jun 28 j 17:02	15°☾47'37	29.15608 AU				
direct	1500 Sep 16 j 18:57	14°☾24'06		conjunction	1508 Jan 13 j 12:57	2°≈15'56	0°07'36
				minimum elong	1508 Jan 13 j 12:57	2°≈15'56	0°07'36
conjunction	1500 Dec 28 j 17:26	16°☾52'25	0°35'05	behind sun begin	1508 Jan 13 j 07:07	2°≈15'24	
minimum elong	1500 Dec 28 j 17:26	16°☾52'25	0°35'05	behind sun end	1508 Jan 13 j 18:47	2°≈16'27	
max. Earth dist.	1500 Dec 28 j 19:22	16°☾52'36	31.15016 AU	max. Earth dist.	1508 Jan 13 j 22:09	2°≈16'47	31.08456 AU
retrograde	1501 Apr 12 j 01:52	19°☾22'43		retrograde	1508 Apr 27 j 13:22	4°≈47'19	
opposition	1501 Jul 01 j 08:42	17°☾59'21	0°35'26	opposition	1508 Jul 17 j 04:15	3°≈23'29	0°05'53
min. Earth dist.	1501 Jul 01 j 05:36	17°☾59'34	29.14436 AU	min. Earth dist.	1508 Jul 16 j 18:29	3°≈24'09	29.08120 AU
direct	1501 Sep 19 j 05:00	16°☾36'01		direct	1508 Oct 04 j 14:04	2°≈00'20	
conjunction	1501 Dec 31 j 03:05	19°☾04'16	0°31'16	conjunction	1509 Jan 14 j 22:57	4°≈28'22	0°03'35
minimum elong	1501 Dec 31 j 03:05	19°☾04'16	0°31'15	minimum elong	1509 Jan 14 j 22:58	4°≈28'22	0°03'35
max. Earth dist.	1501 Dec 31 j 06:57	19°☾04'38	31.13835 AU	behind sun begin	1509 Jan 14 j 16:37	4°≈27'47	
retrograde	1502 Apr 14 j 12:43	21°☾34'41		behind sun end	1509 Jan 15 j 05:19	4°≈28'56	
opposition	1502 Jul 03 j 21:51	20°☾11'13	0°31'20	max. Earth dist.	1509 Jan 15 j 09:50	4°≈29'23	31.07762 AU
min. Earth dist.	1502 Jul 03 j 17:49	20°☾11'30	29.13260 AU	retrograde	1509 Apr 30 j 01:04	6°≈59'55	
direct	1502 Sep 21 j 17:32	18°☾47'52		opposition	1509 Jul 19 j 17:20	5°≈36'04	0°01'34
				min. Earth dist.	1509 Jul 19 j 06:18	5°≈36'49	29.07400 AU
conjunction	1503 Jan 02 j 12:29	21°☾16'03	0°27'25	direct	1509 Oct 07 j 01:39	4°≈12'57	
minimum elong	1503 Jan 02 j 12:29	21°☾16'03	0°27'25	desc. node	1509 Nov 29 j 01:19	4°≈59'01	
max. Earth dist.	1503 Jan 02 j 16:30	21°☾16'26	31.12696 AU				

conjunction	1510 Jan 17 j 09:02	6°40'59	0°00'-33	conjunction	1517 Feb 01 j 09:37	22°10'40	0°-28'-33
minimum elong	1510 Jan 17 j 09:02	6°40'59	0°00'34	minimum elong	1517 Feb 01 j 09:37	22°10'40	0°28'34
behind sun begin	1510 Jan 17 j 02:39	6°40'24		max. Earth dist.	1517 Feb 02 j 00:51	22°12'06	30.99848 AU
behind sun end	1510 Jan 17 j 15:25	6°41'34		retrograde	1517 May 18 j 07:29	24°43'21	
max. Earth dist.	1510 Jan 17 j 19:28	6°41'57	31.07015 AU	min. Earth dist.	1517 Aug 06 j 10:54	23°19'56	28.99437 AU
retrograde	1510 May 02 j 15:03	9°12'43		opposition	1517 Aug 07 j 02:31	23°18'51	0°-32'-38
opposition	1510 Jul 22 j 06:40	7°48'48	0°-2'-45	direct	1517 Oct 24 j 21:15	21°55'44	
min. Earth dist.	1510 Jul 21 j 19:21	7°49'34	29.06622 AU				
direct	1510 Oct 09 j 10:55	6°25'43		conjunction	1518 Feb 03 j 20:17	24°23'36	0°-32'-26
				minimum elong	1518 Feb 03 j 20:17	24°23'36	0°32'28
conjunction	1511 Jan 19 j 19:20	8°53'44	0°-4'-39	max. Earth dist.	1518 Feb 04 j 13:21	24°25'13	30.99006 AU
minimum elong	1511 Jan 19 j 19:20	8°53'44	0°04'40	retrograde	1518 May 20 j 19:07	26°56'27	
behind sun begin	1511 Jan 19 j 13:04	8°53'10		opposition	1518 Aug 09 j 15:30	25°31'55	0°-36'-45
behind sun end	1511 Jan 20 j 01:37	8°54'19		min. Earth dist.	1518 Aug 08 j 22:23	25°33'06	28.98649 AU
max. Earth dist.	1511 Jan 20 j 07:18	8°54'52	31.06178 AU	direct	1518 Oct 27 j 08:35	24°08'50	
retrograde	1511 May 05 j 03:06	11°25'38					
opposition	1511 Jul 24 j 19:57	10°01'39	0°-7'-5	conjunction	1519 Feb 06 j 06:51	26°36'43	0°-36'-17
min. Earth dist.	1511 Jul 24 j 08:09	10°02'28	29.05721 AU	minimum elong	1519 Feb 06 j 06:50	26°36'43	0°36'18
direct	1511 Oct 11 j 23:25	8°38'35		max. Earth dist.	1519 Feb 06 j 23:40	26°38'19	30.98270 AU
				retrograde	1519 May 23 j 09:06	29°09'44	
conjunction	1512 Jan 22 j 05:42	11°06'35	0°-8'-40	min. Earth dist.	1519 Aug 11 j 11:05	27°46'23	28.97966 AU
minimum elong	1512 Jan 22 j 05:41	11°06'35	0°08'41	opposition	1519 Aug 12 j 04:34	27°45'11	0°-40'-50
behind sun begin	1512 Jan 22 j 00:06	11°06'05		direct	1519 Oct 29 j 17:21	26°22'07	
behind sun end	1512 Jan 22 j 11:16	11°07'05					
max. Earth dist.	1512 Jan 22 j 17:08	11°07'39	31.05223 AU	conjunction	1520 Feb 08 j 17:45	28°50'03	0°-40'-4
retrograde	1512 May 06 j 17:52	13°38'36		minimum elong	1520 Feb 08 j 17:45	28°50'03	0°40'05
opposition	1512 Jul 26 j 09:01	12°14'33	0°-11'-24	max. Earth dist.	1520 Feb 09 j 12:17	28°51'48	30.97611 AU
min. Earth dist.	1512 Jul 25 j 20:27	12°15'25	29.04709 AU		1520 Mar 11 j 15:00	0°	
direct	1512 Oct 13 j 10:53	10°51'28		retrograde	1520 May 24 j 21:19	1°23'14	
					1520 Aug 12 j 21:54	30°	
conjunction	1513 Jan 23 j 16:08	13°19'27	0°-12'-41	opposition	1520 Aug 13 j 17:27	29°58'39	0°-44'-52
minimum elong	1513 Jan 23 j 16:09	13°19'27	0°12'42	min. Earth dist.	1520 Aug 12 j 23:22	29°59'54	28.97330 AU
behind sun begin	1513 Jan 23 j 12:01	13°19'04		direct	1520 Oct 31 j 05:14	28°35'39	
behind sun end	1513 Jan 23 j 20:16	13°19'49			1521 Jan 12 j 08:39	0°	
max. Earth dist.	1513 Jan 24 j 04:49	13°20'38	31.04148 AU				
	1513 Mar 12 j 21:49	15°		conjunction	1521 Feb 10 j 04:37	1°03'37	0°-43'-48
retrograde	1513 May 09 j 05:54	15°51'36		minimum elong	1521 Feb 10 j 04:37	1°03'37	0°43'49
	1513 Jul 08 j 11:36	15°		max. Earth dist.	1521 Feb 10 j 22:51	1°05'20	30.96997 AU
opposition	1513 Jul 28 j 22:17	14°27'27	0°-15'-42	retrograde	1521 May 27 j 12:48	3°36'57	
min. Earth dist.	1513 Jul 28 j 09:54	14°28'17	29.03593 AU	min. Earth dist.	1521 Aug 15 j 11:37	2°13'40	28.96725 AU
direct	1513 Oct 15 j 23:03	13°04'21		opposition	1521 Aug 16 j 06:31	2°12'22	0°-48'-49
	1514 Jan 11 j 19:57	15°		direct	1521 Nov 02 j 15:51	0°49'24	
conjunction	1514 Jan 26 j 02:22	15°32'16	0°-16'-42	conjunction	1522 Feb 12 j 15:39	3°17'25	0°-47'-28
minimum elong	1514 Jan 26 j 02:22	15°32'16	0°16'43	minimum elong	1522 Feb 12 j 15:39	3°17'25	0°47'29
max. Earth dist.	1514 Jan 26 j 15:22	15°33'30	31.03019 AU	max. Earth dist.	1522 Feb 13 j 11:06	3°19'15	30.96367 AU
retrograde	1514 May 11 j 19:08	18°04'32		retrograde	1522 May 30 j 01:21	5°50'55	
opposition	1514 Jul 31 j 11:24	16°40'17	0°-19'-59	opposition	1522 Aug 18 j 19:40	4°26'18	0°-52'-43
min. Earth dist.	1514 Jul 30 j 21:24	16°41'15	29.02457 AU	min. Earth dist.	1522 Aug 18 j 01:10	4°27'35	28.96075 AU
direct	1514 Oct 18 j 11:14	15°17'10		direct	1522 Nov 05 j 02:59	3°03'22	
conjunction	1515 Jan 28 j 12:47	17°45'04	0°-20'-41	conjunction	1523 Feb 15 j 02:57	5°31'25	0°-51'-5
minimum elong	1515 Jan 28 j 12:47	17°45'04	0°20'41	minimum elong	1523 Feb 15 j 02:57	5°31'25	0°51'05
max. Earth dist.	1515 Jan 29 j 02:33	17°46'21	31.01881 AU	max. Earth dist.	1523 Feb 15 j 22:19	5°33'15	30.95684 AU
retrograde	1515 May 14 j 06:57	20°17'27		retrograde	1523 Jun 01 j 16:18	8°05'03	
min. Earth dist.	1515 Aug 02 j 10:44	18°54'02	29.01355 AU	opposition	1523 Aug 21 j 08:34	6°40'24	0°-56'-32
opposition	1515 Aug 03 j 00:29	18°53'06	0°-24'-14	min. Earth dist.	1523 Aug 20 j 13:02	6°41'45	28.95347 AU
direct	1515 Oct 20 j 22:59	17°29'58		direct	1523 Nov 07 j 15:09	5°17'28	
conjunction	1516 Jan 30 j 23:16	19°57'50	0°-24'-38	conjunction	1524 Feb 17 j 14:23	7°45'33	0°-54'-36
minimum elong	1516 Jan 30 j 23:16	19°57'50	0°24'39	minimum elong	1524 Feb 17 j 14:23	7°45'33	0°54'37
max. Earth dist.	1516 Jan 31 j 14:14	19°59'15	31.00820 AU	max. Earth dist.	1524 Feb 18 j 09:47	7°47'23	30.94884 AU
retrograde	1516 May 15 j 19:45	22°30'22		retrograde	1524 Jun 03 j 05:58	10°19'19	
opposition	1516 Aug 04 j 13:24	21°05'56	0°-28'-27	opposition	1524 Aug 22 j 21:43	8°54'36	-1°00'-15
min. Earth dist.	1516 Aug 03 j 21:45	21°07'00	29.00338 AU	min. Earth dist.	1524 Aug 22 j 03:02	8°55'53	28.94493 AU
direct	1516 Oct 22 j 11:09	19°42'48		direct	1524 Nov 09 j 03:36	7°31'39	

conjunction	1525 Feb 19 j 01:48	9° H 59'44	0°-58'-3		1533 May 14 j 14:14	0° Y	
minimum elong	1525 Feb 19 j 01:48	9° H 59'44	0°58'04	retrograde	1533 Jun 24 j 03:01	0° Y 26'18	
max. Earth dist.	1525 Feb 19 j 21:46	10° H 01'38	30.93973 AU		1533 Aug 04 j 13:18	30° R H	
retrograde	1525 Jun 05 j 19:44	12° H 33'35		opposition	1533 Sep 12 j 16:10	29° H 01'03	-1°-29'-7
opposition	1525 Aug 25 j 10:41	11° H 08'48	-1°-3'-54	min. Earth dist.	1533 Sep 11 j 18:20	29° H 02'34	28.87433 AU
min. Earth dist.	1525 Aug 24 j 14:45	11° H 10'10	28.93526 AU	direct	1533 Nov 29 j 10:27	27° H 37'53	
direct	1525 Nov 11 j 16:49	9° H 45'49			1534 Mar 08 j 18:19	0° Y	
conjunction	1526 Feb 21 j 13:15	12° H 13'53	-1°-1'-24	conjunction	1534 Mar 11 j 11:26	0° Y 06'10	-1°-24'-34
minimum elong	1526 Feb 21 j 13:15	12° H 13'53	1°01'26	minimum elong	1534 Mar 11 j 11:26	0° Y 06'10	1°24'35
max. Earth dist.	1526 Feb 22 j 08:49	12° H 15'44	30.92965 AU	max. Earth dist.	1534 Mar 12 j 11:13	0° Y 08'25	30.87155 AU
retrograde	1526 Jun 08 j 07:33	14° H 47'49		retrograde	1534 Jun 26 j 17:32	2° Y 40'47	
opposition	1526 Aug 27 j 23:42	13° H 22'56	-1°-7'-26	min. Earth dist.	1534 Sep 14 j 05:43	1° Y 17'08	28.87052 AU
min. Earth dist.	1526 Aug 27 j 04:29	13° H 24'15	28.92505 AU	opposition	1534 Sep 15 j 04:36	1° Y 15'33	-1°-31'-43
direct	1526 Nov 14 j 03:35	11° H 59'53			1534 Nov 10 j 18:18	30° R H	
conjunction	1527 Feb 24 j 00:52	14° H 27'56	-1°-4'-40	direct	1534 Dec 01 j 23:06	29° H 52'24	
minimum elong	1527 Feb 24 j 00:52	14° H 27'56	1°04'41		1534 Dec 22 j 18:49	0° Y	
max. Earth dist.	1527 Feb 24 j 21:47	14° H 29'55	30.91932 AU	conjunction	1535 Mar 13 j 23:45	2° Y 20'46	-1°-26'-56
retrograde	1527 Jun 10 j 19:25	17° H 01'56		minimum elong	1535 Mar 13 j 23:45	2° Y 20'46	1°26'57
opposition	1527 Aug 30 j 12:28	15° H 36'57	-1°-10'-53	max. Earth dist.	1535 Mar 14 j 22:52	2° Y 22'57	30.86757 AU
min. Earth dist.	1527 Aug 29 j 16:14	15° H 38'21	28.91477 AU	retrograde	1535 Jun 29 j 06:54	4° Y 55'29	
direct	1527 Nov 16 j 16:15	14° H 13'52		opposition	1535 Sep 17 j 17:14	3° Y 30'15	-1°-34'-11
conjunction	1528 Feb 26 j 12:21	16° H 41'54	-1°-7'-50	min. Earth dist.	1535 Sep 16 j 19:27	3° Y 31'45	28.86641 AU
minimum elong	1528 Feb 26 j 12:21	16° H 41'54	1°07'51	direct	1535 Dec 04 j 09:45	2° Y 07'07	
max. Earth dist.	1528 Feb 27 j 08:39	16° H 43'49	30.90923 AU	conjunction	1536 Mar 15 j 12:21	4° Y 35'32	-1°-29'-10
retrograde	1528 Jun 12 j 08:44	19° H 15'58		minimum elong	1536 Mar 15 j 12:21	4° Y 35'32	1°29'11
min. Earth dist.	1528 Aug 31 j 04:55	17° H 52'17	28.90518 AU	max. Earth dist.	1536 Mar 16 j 12:15	4° Y 37'48	30.86304 AU
opposition	1528 Sep 01 j 01:08	17° H 50'53	-1°-14'-13	retrograde	1536 Jun 30 j 20:25	7° Y 10'20	
direct	1528 Nov 18 j 02:03	16° H 27'45		min. Earth dist.	1536 Sep 18 j 07:21	5° Y 46'38	28.86143 AU
conjunction	1529 Feb 28 j 00:02	18° H 55'47	-1°-10'-54	opposition	1536 Sep 19 j 05:39	5° Y 45'05	-1°-36'-30
minimum elong	1529 Feb 28 j 00:02	18° H 55'47	1°10'55	direct	1536 Dec 05 j 22:34	4° Y 21'57	
max. Earth dist.	1529 Feb 28 j 21:55	18° H 57'51	30.90003 AU	conjunction	1537 Mar 18 j 00:53	6° Y 50'26	-1°-31'-16
retrograde	1529 Jun 14 j 19:53	21° H 29'55		minimum elong	1537 Mar 18 j 00:53	6° Y 50'26	1°31'17
opposition	1529 Sep 03 j 13:49	20° H 04'47	-1°-17'-26	max. Earth dist.	1537 Mar 18 j 23:29	6° Y 52'35	30.85762 AU
min. Earth dist.	1529 Sep 02 j 16:56	20° H 06'13	28.89658 AU	retrograde	1537 Jul 03 j 10:07	9° Y 25'18	
direct	1529 Nov 20 j 14:13	18° H 41'36		opposition	1537 Sep 21 j 18:14	8° Y 00'01	-1°-38'-40
conjunction	1530 Mar 02 j 11:35	21° H 09'39	-1°-13'-52	min. Earth dist.	1537 Sep 20 j 20:36	8° Y 01'31	28.85567 AU
minimum elong	1530 Mar 02 j 11:35	21° H 09'39	1°13'53	direct	1537 Dec 08 j 08:49	6° Y 36'51	
max. Earth dist.	1530 Mar 03 j 09:07	21° H 11'41	30.89210 AU	conjunction	1538 Mar 20 j 13:33	9° Y 05'22	-1°-33'-14
retrograde	1530 Jun 17 j 10:01	23° H 43'53		minimum elong	1538 Mar 20 j 13:33	9° Y 05'22	1°33'14
min. Earth dist.	1530 Sep 05 j 04:49	22° H 20'11	28.88938 AU	max. Earth dist.	1538 Mar 21 j 13:02	9° Y 07'35	30.85140 AU
opposition	1530 Sep 06 j 02:28	22° H 18'41	-1°-20'-32	retrograde	1538 Jul 05 j 21:14	11° Y 40'15	
direct	1530 Nov 23 j 00:18	20° H 55'29		min. Earth dist.	1538 Sep 23 j 09:01	10° Y 16'26	28.84911 AU
conjunction	1531 Mar 04 j 23:27	23° H 23'34	-1°-16'-43	opposition	1538 Sep 24 j 06:37	10° Y 14'56	-1°-40'-42
minimum elong	1531 Mar 04 j 23:26	23° H 23'34	1°16'44	direct	1538 Dec 10 j 21:20	8° Y 51'43	
max. Earth dist.	1531 Mar 05 j 22:12	23° H 25'43	30.88539 AU	conjunction	1539 Mar 23 j 02:14	11° Y 20'15	-1°-35'-3
retrograde	1531 Jun 19 j 22:07	25° H 57'53		minimum elong	1539 Mar 23 j 02:14	11° Y 20'15	1°35'04
opposition	1531 Sep 08 j 14:58	24° H 32'39	-1°-23'-32	max. Earth dist.	1539 Mar 24 j 00:37	11° Y 22'22	30.84478 AU
min. Earth dist.	1531 Sep 07 j 17:34	24° H 34'08	28.88334 AU	retrograde	1539 Jul 08 j 10:45	13° Y 55'09	
direct	1531 Nov 25 j 10:55	23° H 09'27		opposition	1539 Sep 26 j 18:46	12° Y 29'47	-1°-42'-34
conjunction	1532 Mar 06 j 11:21	25° H 37'36	-1°-19'-27	min. Earth dist.	1539 Sep 25 j 21:06	12° Y 31'17	28.84255 AU
minimum elong	1532 Mar 06 j 11:21	25° H 37'36	1°19'28	direct	1539 Dec 13 j 07:26	11° Y 06'30	
max. Earth dist.	1532 Mar 07 j 10:10	25° H 39'45	30.88000 AU	conjunction	1540 Mar 24 j 15:00	13° Y 35'04	-1°-36'-44
retrograde	1532 Jun 21 j 13:13	28° H 12'00		minimum elong	1540 Mar 24 j 15:00	13° Y 35'04	1°36'44
min. Earth dist.	1532 Sep 09 j 04:55	26° H 48'19	28.87847 AU	max. Earth dist.	1540 Mar 25 j 14:11	13° Y 37'16	30.83824 AU
opposition	1532 Sep 10 j 03:29	26° H 46'45	-1°-26'-23	retrograde	1540 Jul 09 j 22:27	16° Y 09'58	
direct	1532 Nov 26 j 22:46	25° H 23'34		min. Earth dist.	1540 Sep 27 j 09:53	14° Y 46'02	28.83635 AU
conjunction	1533 Mar 08 j 23:12	27° H 51'47	-1°-22'-4	opposition	1540 Sep 28 j 07:00	14° Y 44'33	-1°-44'-17
minimum elong	1533 Mar 08 j 23:12	27° H 51'47	1°22'05	direct	1540 Dec 14 j 17:58	13° Y 21'13	
max. Earth dist.	1533 Mar 09 j 22:24	27° H 53'58	30.87543 AU	conjunction	1541 Mar 27 j 03:34	15° Y 49'49	-1°-38'-15

minimum elong	1541 Mar 27 j 03:34	15° Υ 49'49	1°38'17	minimum elong	1549 Apr 14 j 12:48	3° B 49'02	1°45'00
max. Earth dist.	1541 Mar 28 j 02:32	15° Υ 51'59	30.83256 AU	max. Earth dist.	1549 Apr 15 j 11:01	3° B 51'08	30.82643 AU
retrograde	1541 Jul 12 j 12:30	18° Υ 24'43		retrograde	1549 Jul 30 j 23:07	6° B 23'57	
opposition	1541 Sep 30 j 19:06	16° Υ 59'15	-1°-45'-51	opposition	1549 Oct 18 j 18:21	4° B 58'36	-1°-52'-21
min. Earth dist.	1541 Sep 29 j 21:06	17° Υ 00'48	28.83125 AU	min. Earth dist.	1549 Oct 17 j 22:56	4° B 59'58	28.82751 AU
direct	1541 Dec 17 j 06:18	15° Υ 35'52		direct	1550 Jan 04 j 03:00	3° B 35'06	
conjunction	1542 Mar 29 j 16:23	18° Υ 04'31	-1°-39'-39	conjunction	1550 Apr 17 j 02:32	6° B 04'18	-1°-45'-6
minimum elong	1542 Mar 29 j 16:23	18° Υ 04'31	1°39'39	minimum elong	1550 Apr 17 j 02:32	6° B 04'18	1°45'07
max. Earth dist.	1542 Mar 30 j 15:31	18° Υ 06'42	30.82796 AU	max. Earth dist.	1550 Apr 17 j 23:33	6° B 06'16	30.82598 AU
retrograde	1542 Jul 15 j 01:17	20° Υ 39'25		retrograde	1550 Aug 02 j 12:31	8° B 39'09	
min. Earth dist.	1542 Oct 02 j 10:01	19° Υ 15'24	28.82743 AU	min. Earth dist.	1550 Oct 20 j 10:30	7° B 15'11	28.82663 AU
opposition	1542 Oct 03 j 07:09	19° Υ 13'55	-1°-47'-14	opposition	1550 Oct 21 j 06:00	7° B 13'49	-1°-52'-23
direct	1542 Dec 19 j 17:46	17° Υ 50'29		direct	1551 Jan 06 j 15:05	5° B 50'14	
conjunction	1543 Apr 01 j 05:19	20° Υ 19'12	-1°-40'-52	conjunction	1551 Apr 19 j 16:18	8° B 19'30	-1°-45'-4
minimum elong	1543 Apr 01 j 05:19	20° Υ 19'12	1°40'54	minimum elong	1551 Apr 19 j 16:18	8° B 19'30	1°45'06
max. Earth dist.	1543 Apr 02 j 04:50	20° Υ 21'25	30.82491 AU	max. Earth dist.	1551 Apr 20 j 12:49	8° B 21'26	30.82470 AU
retrograde	1543 Jul 17 j 15:24	22° Υ 54'06		retrograde	1551 Aug 05 j 00:25	10° B 54'18	
opposition	1543 Oct 05 j 19:02	21° Υ 28'36	-1°-48'-29	opposition	1551 Oct 23 j 17:46	9° B 28'57	-1°-52'-16
min. Earth dist.	1543 Oct 04 j 20:48	21° Υ 30'09	28.82508 AU	min. Earth dist.	1551 Oct 22 j 23:47	9° B 30'13	28.82514 AU
direct	1543 Dec 22 j 06:17	20° Υ 05'08		direct	1552 Jan 09 j 02:20	8° B 05'19	
conjunction	1544 Apr 02 j 18:09	22° Υ 33'54	-1°-41'-57	conjunction	1552 Apr 21 j 05:57	10° B 34'37	-1°-44'-53
minimum elong	1544 Apr 02 j 18:09	22° Υ 33'54	1°41'58	minimum elong	1552 Apr 21 j 05:57	10° B 34'37	1°44'53
max. Earth dist.	1544 Apr 03 j 17:08	22° Υ 36'04	30.82320 AU	max. Earth dist.	1552 Apr 22 j 02:09	10° B 36'31	30.82323 AU
retrograde	1544 Jul 19 j 05:07	25° Υ 08'49		retrograde	1552 Aug 06 j 14:07	13° B 09'20	
min. Earth dist.	1544 Oct 06 j 09:42	23° Υ 44'49	28.82416 AU	min. Earth dist.	1552 Oct 24 j 10:41	11° B 45'17	28.82369 AU
opposition	1544 Oct 07 j 07:03	23° Υ 43'19	-1°-49'-33	opposition	1552 Oct 25 j 05:15	11° B 43'58	-1°-51'-59
direct	1544 Dec 23 j 17:20	22° Υ 19'51		direct	1553 Jan 10 j 15:01	10° B 20'16	
conjunction	1545 Apr 05 j 07:15	24° Υ 48'41	-1°-42'-53	conjunction	1553 Apr 23 j 19:36	12° B 49'38	-1°-44'-32
minimum elong	1545 Apr 05 j 07:15	24° Υ 48'41	1°42'54	minimum elong	1553 Apr 23 j 19:36	12° B 49'38	1°44'33
max. Earth dist.	1545 Apr 06 j 07:14	24° Υ 50'57	30.82297 AU	max. Earth dist.	1553 Apr 24 j 14:50	12° B 51'26	30.82198 AU
retrograde	1545 Jul 21 j 19:35	27° Υ 23'36			1553 Jul 01 j 10:49	15° B	
opposition	1545 Oct 09 j 18:52	25° Υ 58'08	-1°-50'-27	retrograde	1553 Aug 09 j 03:20	15° B 24'16	
min. Earth dist.	1545 Oct 08 j 20:54	25° Υ 59'40	28.82446 AU		1553 Sep 17 j 10:02	15° R B	
direct	1545 Dec 26 j 06:42	24° Υ 34'40		opposition	1553 Oct 27 j 16:46	13° B 58'54	-1°-51'-31
conjunction	1546 Apr 07 j 20:17	27° Υ 03'35	-1°-43'-38	min. Earth dist.	1553 Oct 26 j 23:32	14° B 00'07	28.82284 AU
minimum elong	1546 Apr 07 j 20:18	27° Υ 03'35	1°43'39	direct	1554 Jan 13 j 02:29	12° B 35'08	
max. Earth dist.	1546 Apr 08 j 19:07	27° Υ 05'44	30.82376 AU		1554 Apr 24 j 08:46	15° B	
retrograde	1546 Jul 24 j 09:00	29° Υ 38'31		conjunction	1554 Apr 26 j 09:24	15° B 04'34	-1°-44'-1
min. Earth dist.	1546 Oct 11 j 09:37	28° Υ 14'34	28.82561 AU	minimum elong	1554 Apr 26 j 09:24	15° B 04'34	1°44'01
opposition	1546 Oct 12 j 06:49	28° Υ 13'05	-1°-51'-11	max. Earth dist.	1554 Apr 27 j 05:10	15° B 06'25	30.82159 AU
direct	1546 Dec 28 j 17:15	26° Υ 49'37		retrograde	1554 Aug 11 j 17:17	17° B 39'07	
conjunction	1547 Apr 10 j 09:48	29° Υ 18'37	-1°-44'-15	min. Earth dist.	1554 Oct 29 j 10:29	16° B 15'00	28.82288 AU
minimum elong	1547 Apr 10 j 09:48	29° Υ 18'37	1°44'16	opposition	1554 Oct 30 j 04:06	16° B 13'46	-1°-50'-53
max. Earth dist.	1547 Apr 11 j 09:19	29° Υ 20'50	30.82499 AU		1554 Dec 22 j 06:35	15° R B	
retrograde	1547 Apr 28 j 22:11	0° B		direct	1555 Jan 15 j 16:23	14° B 49'57	
opposition	1547 Jul 26 j 21:10	1° B 53'33			1555 Feb 08 j 17:34	15° B	
min. Earth dist.	1547 Oct 14 j 18:31	0° B 28'10	-1°-51'-44	conjunction	1555 Apr 28 j 23:06	17° B 19'26	-1°-43'-21
	1547 Oct 13 j 21:38	0° B 29'38	28.82679 AU	minimum elong	1555 Apr 28 j 23:06	17° B 19'26	1°43'22
	1547 Oct 31 j 18:59	30° R Υ		max. Earth dist.	1555 Apr 29 j 17:28	17° B 21'10	30.82222 AU
direct	1547 Dec 31 j 05:32	29° Υ 04'42		retrograde	1555 Aug 14 j 06:15	19° B 53'55	
	1548 Feb 27 j 05:15	0° B		opposition	1555 Nov 01 j 15:24	18° B 28'35	-1°-50'-5
conjunction	1548 Apr 11 j 23:14	1° B 33'47	-1°-44'-41	min. Earth dist.	1555 Oct 31 j 22:37	18° B 29'46	28.82423 AU
minimum elong	1548 Apr 11 j 23:14	1° B 33'47	1°44'42	direct	1556 Jan 18 j 03:15	17° B 04'44	
max. Earth dist.	1548 Apr 12 j 21:12	1° B 35'51	30.82608 AU	conjunction	1556 Apr 30 j 12:58	19° B 34'19	-1°-42'-31
retrograde	1548 Jul 28 j 11:28	4° B 08'43		minimum elong	1556 Apr 30 j 12:58	19° B 34'19	1°42'32
min. Earth dist.	1548 Oct 15 j 09:50	2° B 44'48	28.82764 AU	max. Earth dist.	1556 May 01 j 08:07	19° B 36'06	30.82424 AU
opposition	1548 Oct 16 j 06:24	2° B 43'21	-1°-52'-7	retrograde	1556 Aug 15 j 18:54	22° B 08'43	
direct	1549 Jan 01 j 15:54	1° B 19'53		min. Earth dist.	1556 Nov 02 j 09:57	20° B 44'37	28.82688 AU
conjunction	1549 Apr 14 j 12:48	3° B 49'02	-1°-44'-59	opposition	1556 Nov 03 j 02:41	20° B 43'26	-1°-49'-7
				direct	1557 Jan 19 j 15:54	19° B 19'34	

conjunction	1557 May 03 j 02:36	21° 8 49'13	-1°-41'-32	conjunction	1565 May 21 j 20:00	9° II 50'29	-1°-28'-14
minimum elong	1557 May 03 j 02:36	21° 8 49'13	1°41'34	minimum elong	1565 May 21 j 20:00	9° II 50'29	1°28'15
max. Earth dist.	1557 May 03 j 20:19	21° 8 50'53	30.82770 AU	max. Earth dist.	1565 May 22 j 08:02	9° II 51'37	30.85939 AU
retrograde	1557 Aug 18 j 09:22	24° 8 23'34		retrograde	1565 Sep 05 j 13:06	12° II 23'58	
opposition	1557 Nov 05 j 13:59	22° 8 58'21	-1°-47'-59	opposition	1565 Nov 23 j 06:39	10° II 59'07	-1°-33'-8
min. Earth dist.	1557 Nov 04 j 21:25	22° 8 59'31	28.83097 AU	min. Earth dist.	1565 Nov 22 j 20:41	10° II 59'49	28.86124 AU
direct	1558 Jan 22 j 02:34	21° 8 34'28		direct	1566 Feb 09 j 02:13	9° II 34'52	
conjunction	1558 May 05 j 16:38	24° 8 04'13	-1°-40'-24	conjunction	1566 May 24 j 10:09	12° II 05'09	-1°-25'-57
minimum elong	1558 May 05 j 16:38	24° 8 04'13	1°40'24	minimum elong	1566 May 24 j 10:09	12° II 05'09	1°25'57
max. Earth dist.	1558 May 06 j 10:49	24° 8 05'56	30.83230 AU	max. Earth dist.	1566 May 24 j 20:15	12° II 06'06	30.86185 AU
retrograde	1558 Aug 20 j 20:30	26° 8 38'30		retrograde	1566 Sep 08 j 02:42	14° II 38'28	
min. Earth dist.	1558 Nov 07 j 09:39	25° 8 14'28	28.83593 AU	opposition	1566 Nov 25 j 17:19	13° II 13'37	-1°-30'-37
opposition	1558 Nov 08 j 01:08	25° 8 13'22	-1°-46'-40	min. Earth dist.	1566 Nov 25 j 07:49	13° II 14'17	28.86404 AU
direct	1559 Jan 24 j 13:34	23° 8 49'30		direct	1567 Feb 11 j 14:14	11° II 49'17	
conjunction	1559 May 08 j 06:41	26° 8 19'21	-1°-39'-6	conjunction	1567 May 27 j 00:24	14° II 19'38	-1°-23'-32
minimum elong	1559 May 08 j 06:41	26° 8 19'21	1°39'08	minimum elong	1567 May 27 j 00:24	14° II 19'38	1°23'33
max. Earth dist.	1559 May 08 j 23:37	26° 8 20'56	30.83770 AU	max. Earth dist.	1567 May 27 j 10:49	14° II 20'36	30.86504 AU
retrograde	1559 Aug 23 j 09:29	28° 8 53'34		retrograde	1567 Sep 10 j 13:18	16° II 52'46	
opposition	1559 Nov 10 j 12:18	27° 8 28'31	-1°-45'-12	opposition	1567 Nov 28 j 04:05	15° II 27'57	-1°-27'-58
min. Earth dist.	1559 Nov 09 j 20:47	27° 8 29'37	28.84143 AU	min. Earth dist.	1567 Nov 27 j 19:39	15° II 28'33	28.86773 AU
direct	1560 Jan 27 j 01:01	26° 8 04'39		direct	1568 Feb 14 j 02:18	14° II 03'34	
conjunction	1560 May 09 j 20:42	28° 8 34'36	-1°-37'-39	conjunction	1568 May 28 j 14:17	16° II 33'56	-1°-21'00
minimum elong	1560 May 09 j 20:42	28° 8 34'36	1°37'39	minimum elong	1568 May 28 j 14:17	16° II 33'56	1°21'00
max. Earth dist.	1560 May 10 j 13:11	28° 8 36'09	30.84307 AU	max. Earth dist.	1568 May 28 j 23:26	16° II 34'47	30.86947 AU
	1560 Jun 19 j 01:24	0° II		retrograde	1568 Sep 12 j 02:03	19° II 06'55	
retrograde	1560 Aug 24 j 21:15	1° II 08'46		opposition	1568 Nov 29 j 14:42	17° II 42'09	-1°-25'-11
	1560 Nov 02 j 08:46	30° R 8		min. Earth dist.	1568 Nov 29 j 06:00	17° II 42'46	28.87282 AU
opposition	1560 Nov 11 j 23:35	29° 8 43'47	-1°-43'-34	direct	1569 Feb 15 j 13:55	16° II 17'43	
min. Earth dist.	1560 Nov 11 j 09:48	29° 8 44'46	28.84662 AU				
direct	1561 Jan 28 j 11:08	28° 8 19'54		conjunction	1569 May 31 j 04:24	18° II 48'09	-1°-18'-20
	1561 Apr 19 j 19:40	0° II		minimum elong	1569 May 31 j 04:24	18° II 48'09	1°18'22
conjunction	1561 May 12 j 10:57	0° II 49'56	-1°-36'-3	max. Earth dist.	1569 May 31 j 13:26	18° II 48'59	30.87525 AU
minimum elong	1561 May 12 j 10:58	0° II 49'56	1°36'04	retrograde	1569 Sep 14 j 13:10	21° II 20'59	
max. Earth dist.	1561 May 13 j 02:29	0° II 51'23	30.84804 AU	opposition	1569 Dec 02 j 01:20	19° II 56'18	-1°-22'-16
retrograde	1561 Aug 27 j 10:29	3° II 24'00		min. Earth dist.	1569 Dec 01 j 18:05	19° II 56'49	28.87933 AU
opposition	1561 Nov 14 j 10:39	1° II 59'05	-1°-41'-46	direct	1570 Feb 17 j 23:58	18° II 31'49	
min. Earth dist.	1561 Nov 13 j 20:46	2° II 00'04	28.85107 AU				
direct	1562 Jan 30 j 23:13	0° II 35'09		conjunction	1570 Jun 02 j 18:32	21° II 02'20	-1°-15'-33
conjunction	1562 May 15 j 01:15	3° II 05'16	-1°-34'-18	minimum elong	1570 Jun 02 j 18:33	21° II 02'20	1°15'34
minimum elong	1562 May 15 j 01:15	3° II 05'16	1°34'19	max. Earth dist.	1570 Jun 03 j 02:48	21° II 03'06	30.88259 AU
max. Earth dist.	1562 May 15 j 15:12	3° II 06'34	30.85195 AU	retrograde	1570 Sep 17 j 01:23	23° II 35'03	
retrograde	1562 Aug 29 j 22:42	5° II 39'13		opposition	1570 Dec 04 j 11:51	22° II 10'27	-1°-19'-14
opposition	1562 Nov 16 j 21:53	4° II 14'20	-1°-39'-50	min. Earth dist.	1570 Dec 04 j 04:10	22° II 11'00	28.88716 AU
min. Earth dist.	1562 Nov 16 j 09:52	4° II 15'11	28.85448 AU	direct	1571 Feb 20 j 11:47	20° II 45'58	
direct	1563 Feb 02 j 11:08	2° II 50'21					
conjunction	1563 May 17 j 15:37	5° II 20'31	-1°-32'-25	conjunction	1571 Jun 05 j 08:36	23° II 16'34	-1°-12'-39
minimum elong	1563 May 17 j 15:37	5° II 20'31	1°32'26	minimum elong	1571 Jun 05 j 08:36	23° II 16'35	1°12'40
max. Earth dist.	1563 May 18 j 05:16	5° II 21'48	30.85495 AU	max. Earth dist.	1571 Jun 05 j 15:49	23° II 17'15	30.89093 AU
retrograde	1563 Sep 01 j 11:32	7° II 54'19		retrograde	1571 Sep 19 j 12:38	25° II 49'11	
opposition	1563 Nov 19 j 08:48	6° II 29'28	-1°-37'-44	opposition	1571 Dec 06 j 22:27	24° II 24'41	-1°-16'-4
min. Earth dist.	1563 Nov 18 j 20:58	6° II 30'18	28.85694 AU	min. Earth dist.	1571 Dec 06 j 16:24	24° II 25'07	28.89591 AU
direct	1564 Feb 05 j 01:08	5° II 05'23		direct	1572 Feb 22 j 22:35	23° II 00'12	
conjunction	1564 May 19 j 05:48	7° II 35'36	-1°-30'-23	conjunction	1572 Jun 06 j 22:49	25° II 30'55	-1°-9'-38
minimum elong	1564 May 19 j 05:48	7° II 35'37	1°30'24	minimum elong	1572 Jun 06 j 22:49	25° II 30'55	1°09'39
max. Earth dist.	1564 May 19 j 17:32	7° II 36'42	30.85723 AU	max. Earth dist.	1572 Jun 07 j 05:50	25° II 31'34	30.90001 AU
retrograde	1564 Sep 03 j 00:27	10° II 09'15		retrograde	1572 Sep 21 j 01:04	28° II 03'25	
opposition	1564 Nov 20 j 19:48	8° II 44'24	-1°-35'-30	opposition	1572 Dec 08 j 08:56	26° II 39'02	-1°-12'-48
min. Earth dist.	1564 Nov 20 j 09:18	8° II 45'08	28.85911 AU	min. Earth dist.	1572 Dec 08 j 03:02	26° II 39'27	28.90493 AU
direct	1565 Feb 06 j 12:20	7° II 20'14		direct	1573 Feb 24 j 11:25	25° II 14'33	
				conjunction	1573 Jun 09 j 12:56	27° II 45'22	-1°-6'-31
				minimum elong	1573 Jun 09 j 12:56	27° II 45'22	1°06'33
				max. Earth dist.	1573 Jun 09 j 18:01	27° II 45'50	30.90893 AU

	1573 Aug 21 j 22:20	0°♄		minimum elong	1581 Jun 28 j 05:18	15°♄38'04	0°38'35
retrograde	1573 Sep 23 j 13:56	0°♄17'45		max. Earth dist.	1581 Jun 28 j 03:27	15°♄37'54	30.96458 AU
	1573 Oct 26 j 14:32	30°♄II		retrograde	1581 Oct 11 j 10:19	18°♄09'02	
opposition	1573 Dec 10 j 19:35	28°♄53'28	-1°-9'-25	opposition	1581 Dec 28 j 06:24	16°♄45'11	0°-39'-12
min. Earth dist.	1573 Dec 10 j 15:12	28°♄53'46	28.91360 AU	min. Earth dist.	1581 Dec 28 j 08:02	16°♄45'04	28.96934 AU
direct	1574 Feb 26 j 22:02	27°♄28'58		direct	1582 Mar 16 j 22:49	15°♄20'15	
conjunction	1574 Jun 12 j 03:22	29°♄59'53	-1°-3'-19	conjunction	1582 Jun 30 j 19:02	17°♄51'27	0°-34'-46
minimum elong	1574 Jun 12 j 03:22	29°♄59'53	1°03'19	minimum elong	1582 Jun 30 j 19:02	17°♄51'27	0°34'46
max. Earth dist.	1574 Jun 12 j 08:17	0°♄00'20	30.91718 AU	max. Earth dist.	1582 Jun 30 j 15:42	17°♄51'09	30.97421 AU
	1574 Jun 12 j 04:42	0°♄		retrograde	1582 Oct 23 21:38	20°♄22'16	
retrograde	1574 Sep 26 j 02:37	2°♄32'06		opposition	1583 Jan 09 16:36	18°♄58'29	0°-35'-6
opposition	1574 Dec 13 j 06:05	1°♄07'54	-1°-5'-55	min. Earth dist.	1583 Jan 09 19:13	18°♄58'18	28.97971 AU
min. Earth dist.	1574 Dec 13 j 02:36	1°♄08'09	28.92129 AU	direct	1583 Mar 29 09:09	17°♄33'32	
	1575 Jan 28 j 15:54	30°♄II					
direct	1575 Mar 01 j 11:56	29°♄43'23		conjunction	1583 Jul 13 08:52	20°♄04'48	0°-30'-54
	1575 Apr 01 j 23:39	0°♄		minimum elong	1583 Jul 13 08:52	20°♄04'48	0°30'56
				max. Earth dist.	1583 Jul 13 05:55	20°♄04'32	30.98523 AU
conjunction	1575 Jun 14 j 17:34	2°♄14'22	-1°00'00	retrograde	1583 Oct 26 08:54	22°♄35'27	
minimum elong	1575 Jun 14 j 17:34	2°♄14'22	1°00'02	opposition	1584 Jan 12 02:50	21°♄11'47	0°-30'-57
max. Earth dist.	1575 Jun 14 j 20:05	2°♄14'36	30.92450 AU	min. Earth dist.	1584 Jan 12 05:58	21°♄11'33	28.99112 AU
retrograde	1575 Sep 28 j 16:06	4°♄46'26		direct	1584 Mar 30 22:34	19°♄46'50	
opposition	1575 Dec 15 j 16:38	3°♄22'18	-1°-2'-20				
min. Earth dist.	1575 Dec 15 j 13:54	3°♄22'29	28.92818 AU	conjunction	1584 Jul 14 22:20	22°♄18'10	0°-27'00
direct	1576 Mar 03 j 00:21	1°♄57'43		minimum elong	1584 Jul 14 22:21	22°♄18'10	0°27'01
				max. Earth dist.	1584 Jul 14 17:32	22°♄17'43	30.99710 AU
conjunction	1576 Jun 16 j 07:40	4°♄28'45	0°-56'-37	retrograde	1584 Oct 27 21:43	24°♄48'41	
minimum elong	1576 Jun 16 j 07:41	4°♄28'45	0°56'37	opposition	1585 Jan 13 13:02	23°♄25'06	0°-26'-46
max. Earth dist.	1576 Jun 16 j 10:08	4°♄28'59	30.93098 AU	min. Earth dist.	1585 Jan 13 16:40	23°♄24'51	29.00320 AU
retrograde	1576 Sep 30 j 02:49	7°♄00'40		direct	1585 Apr 02 10:26	22°♄00'10	
opposition	1576 Dec 17 j 03:11	5°♄36'34	0°-58'-40				
min. Earth dist.	1576 Dec 17 j 01:56	5°♄36'39	28.93428 AU	conjunction	1585 Jul 17 12:13	24°♄31'35	0°-23'-4
direct	1577 Mar 05 j 12:54	4°♄11'56		minimum elong	1585 Jul 17 12:13	24°♄31'35	0°23'06
				max. Earth dist.	1585 Jul 17 07:28	24°♄31'09	31.00911 AU
conjunction	1577 Jun 18 j 21:44	6°♄43'00	0°-53'-8	retrograde	1585 Oct 30 08:41	27°♄01'57	
minimum elong	1577 Jun 18 j 21:44	6°♄43'00	0°53'10	opposition	1586 Jan 15 23:15	25°♄38'29	0°-22'-32
max. Earth dist.	1577 Jun 18 j 22:18	6°♄43'03	30.93702 AU	min. Earth dist.	1586 Jan 16 04:28	25°♄38'07	29.01499 AU
retrograde	1577 Oct 02 j 15:49	9°♄14'43		direct	1586 Apr 04 22:35	24°♄13'33	
opposition	1577 Dec 19 j 13:23	7°♄50'40	0°-54'-55				
min. Earth dist.	1577 Dec 19 j 12:20	7°♄50'44	28.94018 AU	conjunction	1586 Jul 20 01:59	26°♄45'01	0°-19'-6
direct	1578 Mar 08 j 01:07	6°♄25'58		minimum elong	1586 Jul 20 01:59	26°♄45'01	0°19'07
				max. Earth dist.	1586 Jul 19 19:10	26°♄44'24	31.02063 AU
conjunction	1578 Jun 21 j 11:51	8°♄57'04	0°-49'-36	retrograde	1586 Nov 01 22:08	29°♄15'14	
minimum elong	1578 Jun 21 j 11:51	8°♄57'04	0°49'36	opposition	1587 Jan 18 09:31	27°♄51'52	0°-18'-16
max. Earth dist.	1578 Jun 21 j 12:02	8°♄57'05	30.94288 AU	min. Earth dist.	1587 Jan 18 14:57	27°♄51'29	29.02606 AU
retrograde	1578 Oct 05 j 02:40	11°♄28'35		direct	1587 Apr 07 11:18	26°♄26'56	
opposition	1578 Dec 21 j 23:48	10°♄04'34	0°-51'-6				
min. Earth dist.	1578 Dec 22 j 00:29	10°♄04'31	28.94615 AU	conjunction	1587 Jul 22 15:40	28°♄58'27	0°-15'-6
direct	1579 Mar 10 j 11:48	8°♄39'48		minimum elong	1587 Jul 22 15:40	28°♄58'27	0°15'07
				behind sun begin	1587 Jul 22 13:45	28°♄58'16	
conjunction	1579 Jun 24 j 01:42	11°♄10'55	0°-45'-59	behind sun end	1587 Jul 22 17:36	28°♄58'37	
minimum elong	1579 Jun 24 j 01:42	11°♄10'55	0°46'00	max. Earth dist.	1587 Jul 22 08:24	28°♄57'47	31.03107 AU
max. Earth dist.	1579 Jun 24 j 00:53	11°♄10'50	30.94917 AU		1587 Aug 20 01:51	0°♄	
retrograde	1579 Oct 07 j 13:23	13°♄42'14		retrograde	1587 Nov 04 08:47	1°♄28'30	
opposition	1579 Dec 24 j 09:58	12°♄18'16	0°-47'-12	opposition	1588 Jan 20 19:56	0°♄05'12	0°-13'-59
min. Earth dist.	1579 Dec 24 j 10:17	12°♄18'15	28.95273 AU	min. Earth dist.	1588 Jan 21 03:19	0°♄04'41	29.03600 AU
direct	1580 Mar 12 j 00:13	10°♄53'26			1588 Jan 23 21:48	30°♄	
				direct	1588 Apr 08 22:41	28°♄40'15	
conjunction	1580 Jun 25 j 15:30	13°♄24'35	0°-42'-18		1588 Jun 20 15:53	0°♄	
minimum elong	1580 Jun 25 j 15:30	13°♄24'35	0°42'19				
max. Earth dist.	1580 Jun 25 j 13:45	13°♄24'25	30.95620 AU	conjunction	1588 Jul 24 05:18	1°♄11'47	0°-11'-5
retrograde	1580 Oct 08 j 23:12	15°♄55'43		minimum elong	1588 Jul 24 05:18	1°♄11'47	0°11'06
opposition	1580 Dec 25 j 20:13	14°♄31'48	0°-43'-13	behind sun begin	1588 Jul 24 00:27	1°♄11'22	
min. Earth dist.	1580 Dec 25 j 22:00	14°♄31'40	28.96042 AU	behind sun end	1588 Jul 24 10:08	1°♄12'13	
direct	1581 Mar 14 j 10:43	13°♄06'54		max. Earth dist.	1588 Jul 23 20:35	1°♄11'00	31.04055 AU
				retrograde	1588 Nov 05 19:59	3°♄41'41	
conjunction	1581 Jun 28 j 05:18	15°♄38'04	0°-38'-33	opposition	1589 Jan 22 06:05	2°♄18'27	0°-9'-41

min. Earth dist.	1589 Jan 22 13:27	2°Ω17'56	29.04490 AU	conjunction	1595 Aug 10 01:40	16°Ω41'12	0°17'06
direct	1589 Apr 11 11:24	0°Ω53'27		minimum elong	1595 Aug 10 01:39	16°Ω41'12	0°17'05
				retrograde	1595 Nov 21 23:55	19°Ω09'59	
conjunction	1589 Jul 26 18:53	3°Ω25'01	0°-7'-5	opposition	1596 Feb 07 05:26	17°Ω47'08	0°20'20
minimum elong	1589 Jul 26 18:54	3°Ω25'01	0°07'06	min. Earth dist.	1596 Feb 07 17:08	17°Ω46'19	29.10492 AU
behind sun begin	1589 Jul 26 12:49	3°Ω24'29		direct	1596 Apr 26 22:46	16°Ω21'58	
behind sun end	1589 Jul 27 00:58	3°Ω25'34					
max. Earth dist.	1589 Jul 26 08:56	3°Ω24'07	31.04894 AU	conjunction	1596 Aug 11 14:36	18°Ω53'39	0°21'03
retrograde	1589 Nov 08 05:59	5°Ω54'44		minimum elong	1596 Aug 11 14:36	18°Ω53'39	0°21'03
opposition	1590 Jan 24 16:25	4°Ω31'34	0°-5'-22	max. Earth dist.	1596 Aug 11 00:34	18°Ω52'21	31.11045 AU
min. Earth dist.	1590 Jan 25 01:35	4°Ω30'55	29.05295 AU	retrograde	1596 Nov 23 10:22	21°Ω22'19	
direct	1590 Apr 13 21:59	3°Ω06'31		opposition	1597 Feb 08 15:37	19°Ω59'34	0°24'32
				min. Earth dist.	1597 Feb 09 04:56	19°Ω58'38	29.11637 AU
conjunction	1590 Jul 29 08:25	5°Ω38'06	0°-3'-3	direct	1597 Apr 29 10:21	18°Ω34'25	
minimum elong	1590 Jul 29 08:24	5°Ω38'06	0°03'04				
behind sun begin	1590 Jul 29 01:50	5°Ω37'31		conjunction	1597 Aug 14 03:27	21°Ω06'09	0°24'58
behind sun end	1590 Jul 29 14:58	5°Ω38'41		minimum elong	1597 Aug 14 03:27	21°Ω06'09	0°24'58
max. Earth dist.	1590 Jul 28 21:54	5°Ω37'08	31.05669 AU	max. Earth dist.	1597 Aug 13 12:22	21°Ω04'45	31.12202 AU
retrograde	1590 Nov 10 16:24	8°Ω07'38		retrograde	1597 Nov 25 21:34	23°Ω34'42	
opposition	1591 Jan 27 02:33	6°Ω44'31	0°-1'-3	opposition	1598 Feb 11 01:49	22°Ω12'04	0°28'43
min. Earth dist.	1591 Jan 27 11:54	6°Ω43'51	29.06038 AU	min. Earth dist.	1598 Feb 11 14:52	22°Ω11'09	29.12777 AU
direct	1591 Apr 16 10:04	5°Ω19'25		direct	1598 May 01 23:01	20°Ω46'56	
asc. node	1591 Apr 28 12:56	5°Ω21'51					
				conjunction	1598 Aug 16 16:18	23°Ω18'42	0°28'51
conjunction	1591 Jul 31 21:40	7°Ω51'00	0°01'04	minimum elong	1598 Aug 16 16:18	23°Ω18'42	0°28'52
minimum elong	1591 Jul 31 21:41	7°Ω51'00	0°01'04	max. Earth dist.	1598 Aug 16 00:20	23°Ω17'14	31.13304 AU
behind sun begin	1591 Jul 31 15:06	7°Ω50'25		retrograde	1598 Nov 28 08:01	25°Ω47'09	
behind sun end	1591 Aug 01 04:16	7°Ω51'35		opposition	1599 Feb 13 12:13	24°Ω24'35	0°32'51
max. Earth dist.	1591 Jul 31 09:37	7°Ω49'54	31.06404 AU	min. Earth dist.	1599 Feb 14 02:53	24°Ω23'33	29.13853 AU
retrograde	1591 Nov 13 02:51	10°Ω20'22		direct	1599 May 04 09:28	22°Ω59'29	
opposition	1592 Jan 29 12:48	8°Ω57'17	0°03'14				
min. Earth dist.	1592 Jan 29 23:12	8°Ω56'33	29.06790 AU	conjunction	1599 Aug 19 05:07	25°Ω31'15	0°32'42
direct	1592 Apr 17 20:34	7°Ω32'09		minimum elong	1599 Aug 19 05:07	25°Ω31'15	0°32'42
				max. Earth dist.	1599 Aug 18 12:40	25°Ω29'44	31.14328 AU
conjunction	1592 Aug 02 10:48	10°Ω03'44	0°05'08	retrograde	1599 Nov 30 18:24	27°Ω59'34	
minimum elong	1592 Aug 02 10:48	10°Ω03'44	0°05'08	opposition	1600 Feb 15 22:35	26°Ω37'05	0°36'55
behind sun begin	1592 Aug 02 04:25	10°Ω03'10		min. Earth dist.	1600 Feb 16 13:26	26°Ω36'02	29.14816 AU
behind sun end	1592 Aug 02 17:11	10°Ω04'17		direct	1600 May 05 21:24	25°Ω11'58	
max. Earth dist.	1592 Aug 01 23:09	10°Ω02'40	31.07165 AU				
retrograde	1592 Nov 14 12:50	12°Ω32'56		conjunction	1600 Aug 20 17:43	27°Ω43'44	0°36'29
opposition	1593 Jan 30 22:58	11°Ω09'53	0°07'32	minimum elong	1600 Aug 20 17:43	27°Ω43'44	0°36'29
min. Earth dist.	1593 Jan 31 09:55	11°Ω09'07	29.07568 AU	max. Earth dist.	1600 Aug 19 23:39	27°Ω42'04	31.15225 AU
direct	1593 Apr 20 09:57	9°Ω44'43			1600 Nov 05 18:01	0°♄	
				retrograde	1600 Dec 02 04:06	0°♄11'56	
conjunction	1593 Aug 04 23:49	12°Ω16'18	0°09'08		1600 Dec 28 21:53	30°♄Ω	
minimum elong	1593 Aug 04 23:49	12°Ω16'18	0°09'07				
behind sun begin	1593 Aug 04 18:16	12°Ω15'49					
behind sun end	1593 Aug 05 05:23	12°Ω16'48					
max. Earth dist.	1593 Aug 04 10:25	12°Ω15'04	31.07982 AU				
retrograde	1593 Nov 17 00:35	14°Ω45'22					
opposition	1594 Feb 02 09:01	13°Ω22'21	0°11'49				
min. Earth dist.	1594 Feb 02 20:06	13°Ω21'35	29.08439 AU				
direct	1594 Apr 22 21:33	11°Ω57'09					
conjunction	1594 Aug 07 12:57	14°Ω28'46	0°13'07				
minimum elong	1594 Aug 07 12:57	14°Ω28'46	0°13'07				
behind sun begin	1594 Aug 07 09:09	14°Ω28'26					
behind sun end	1594 Aug 07 16:45	14°Ω29'07					
max. Earth dist.	1594 Aug 07 00:05	14°Ω27'36	31.08897 AU				
	1594 Aug 21 15:52	15°Ω					
retrograde	1594 Nov 19 10:52	16°Ω57'41					
opposition	1595 Feb 04 19:18	15°Ω34'45	0°16'05				
min. Earth dist.	1595 Feb 05 07:25	15°Ω33'54	29.09409 AU				
	1595 Feb 26 00:39	15°♄Ω					
direct	1595 Apr 25 09:38	14°Ω09'34					
	1595 Jun 21 07:42	15°Ω					
max. Earth dist.	1595 Aug 09 11:25	16°Ω39'53	31.09929 AU				

opposition	1600 Feb 15 22:35	26°Ω37'05	0°36'55	conjunction	1607 Sep 06 07:15	13°♊05'59	1°01'07
min. Earth dist.	1600 Feb 16 13:26	26°Ω36'02	29.14816 AU	minimum elong	1607 Sep 06 07:14	13°♊05'59	1°01'07
direct	1600 May 05 21:24	25°Ω11'58		retrograde	1607 Dec 18 04:03	15°♊33'16	
conjunction	1600 Aug 20 17:43	27°Ω43'44	0°36'29	opposition	1608 Mar 04 09:37	14°♊10'56	1°06'59
minimum elong	1600 Aug 20 17:43	27°Ω43'44	0°36'29	min. Earth dist.	1608 Mar 05 04:42	14°♊09'37	29.20298 AU
max. Earth dist.	1600 Aug 19 23:39	27°Ω42'04	31.15225 AU	direct	1608 May 23 21:41	12°♊45'39	
	1600 Nov 05 18:01	0°♊		conjunction	1608 Sep 07 18:57	15°♊17'11	1°04'19
retrograde	1600 Dec 02 04:06	0°♊11'56		minimum elong	1608 Sep 07 18:56	15°♊17'11	1°04'19
	1600 Dec 28 21:53	30°♊Ω		max. Earth dist.	1608 Sep 06 22:13	15°♊15'15	31.20691 AU
opposition	1601 Feb 17 09:01	28°Ω49'29	0°40'57	retrograde	1608 Dec 19 13:55	17°♊44'23	
min. Earth dist.	1601 Feb 18 01:01	28°Ω48'22	29.15661 AU	opposition	1609 Mar 06 20:04	16°♊22'09	1°10'21
direct	1601 May 08 08:14	27°Ω24'21		min. Earth dist.	1609 Mar 07 14:48	16°♊20'50	29.21210 AU
conjunction	1601 Aug 23 06:29	29°Ω56'06	0°40'13	direct	1609 May 26 09:47	14°♊56'54	
minimum elong	1601 Aug 23 06:29	29°Ω56'06	0°40'13	max. Earth dist.	1609 Sep 09 08:57	17°♊26'26	31.21626 AU
max. Earth dist.	1601 Aug 22 12:32	29°Ω54'26	31.16000 AU	conjunction	1609 Sep 10 06:37	17°♊28'26	1°07'25
	1601 Aug 25 00:30	0°♊		minimum elong	1609 Sep 10 06:37	17°♊28'26	1°07'25
retrograde	1601 Dec 04 12:57	2°♊24'09		retrograde	1609 Dec 21 23:43	19°♊55'36	
opposition	1602 Feb 19 19:21	1°♊01'44	0°44'54	opposition	1610 Mar 09 06:30	18°♊33'26	1°13'37
min. Earth dist.	1602 Feb 20 12:11	1°♊00'33	29.16372 AU	min. Earth dist.	1610 Mar 10 01:50	18°♊32'06	29.22168 AU
	1602 Apr 02 01:05	30°♊Ω		direct	1610 May 28 19:57	17°♊08'15	
direct	1602 May 10 20:54	29°Ω36'34		conjunction	1610 Sep 12 18:21	19°♊39'48	1°10'25
	1602 Jun 18 04:14	0°♊		minimum elong	1610 Sep 12 18:21	19°♊39'48	1°10'25
conjunction	1602 Aug 25 18:58	2°♊08'17	0°43'53	max. Earth dist.	1610 Sep 11 21:25	19°♊37'52	31.22572 AU
minimum elong	1602 Aug 25 18:57	2°♊08'17	0°43'53	retrograde	1610 Dec 24 08:33	22°♊06'56	
max. Earth dist.	1602 Aug 24 23:07	2°♊06'27	31.16662 AU	opposition	1611 Mar 11 17:13	20°♊44'51	1°16'46
retrograde	1602 Dec 07 00:16	4°♊36'11		min. Earth dist.	1611 Mar 12 13:02	20°♊43'28	29.23090 AU
opposition	1603 Feb 22 05:44	3°♊13'46	0°48'47	direct	1611 May 31 07:36	19°♊19'43	
min. Earth dist.	1603 Feb 22 22:47	3°♊12'35	29.17001 AU	max. Earth dist.	1611 Sep 14 07:22	21°♊49'11	31.23458 AU
direct	1603 May 13 07:57	1°♊48'34		conjunction	1611 Sep 15 05:45	21°♊51'16	1°13'19
max. Earth dist.	1603 Aug 27 11:55	4°♊18'27	31.17249 AU	minimum elong	1611 Sep 15 05:45	21°♊51'16	1°13'19
conjunction	1603 Aug 28 07:16	4°♊20'14	0°47'29	retrograde	1611 Dec 26 19:57	24°♊18'21	
minimum elong	1603 Aug 28 07:16	4°♊20'14	0°47'29	opposition	1612 Mar 13 03:52	22°♊56'19	1°19'48
retrograde	1603 Dec 09 09:33	6°♊48'00		min. Earth dist.	1612 Mar 13 23:37	22°♊54'57	29.23942 AU
opposition	1604 Feb 24 16:11	5°♊25'36	0°52'36	direct	1612 Jun 01 17:33	21°♊31'13	
min. Earth dist.	1604 Feb 25 10:28	5°♊24'19	29.17568 AU	conjunction	1612 Sep 16 17:26	24°♊02'46	1°16'07
direct	1604 May 14 20:29	4°♊00'20		minimum elong	1612 Sep 16 17:26	24°♊02'46	1°16'06
conjunction	1604 Aug 29 19:24	6°♊31'58	0°51'01	max. Earth dist.	1612 Sep 15 19:35	24°♊00'44	31.24243 AU
minimum elong	1604 Aug 29 19:24	6°♊31'58	0°51'01	retrograde	1612 Dec 28 05:18	26°♊29'49	
max. Earth dist.	1604 Aug 28 22:38	6°♊30'02	31.17812 AU	opposition	1613 Mar 15 14:34	25°♊07'50	1°22'44
retrograde	1604 Dec 10 21:27	8°♊59'34		min. Earth dist.	1613 Mar 16 11:36	25°♊06'22	29.24670 AU
opposition	1605 Feb 26 02:20	7°♊37'10	0°56'19	direct	1613 Jun 04 05:35	23°♊42'46	
min. Earth dist.	1605 Feb 26 20:12	7°♊35'55	29.18139 AU	max. Earth dist.	1613 Sep 18 05:38	26°♊12'07	31.24910 AU
direct	1605 May 17 09:52	6°♊11'52		conjunction	1613 Sep 19 04:56	26°♊14'17	1°18'48
max. Earth dist.	1605 Aug 31 11:12	8°♊41'34	31.18389 AU	minimum elong	1613 Sep 19 04:56	26°♊14'17	1°18'48
conjunction	1605 Sep 01 07:34	8°♊43'27	0°54'28	retrograde	1613 Dec 30 17:25	28°♊41'16	
minimum elong	1605 Sep 01 07:34	8°♊43'27	0°54'28	opposition	1614 Mar 18 01:20	27°♊19'18	1°25'32
retrograde	1605 Dec 13 07:04	11°♊10'57		min. Earth dist.	1614 Mar 18 21:54	27°♊17'53	29.25276 AU
opposition	1606 Feb 28 12:49	9°♊48'32	0°59'58	direct	1614 Jun 06 18:49	25°♊54'15	
min. Earth dist.	1606 Mar 01 07:57	9°♊47'12	29.18756 AU	conjunction	1614 Sep 21 16:22	28°♊25'44	1°21'22
direct	1606 May 19 21:58	8°♊23'13		minimum elong	1614 Sep 21 16:22	28°♊25'44	1°21'21
conjunction	1606 Sep 03 19:25	10°♊54'46	0°57'50	max. Earth dist.	1614 Sep 20 17:23	28°♊23'36	31.25442 AU
minimum elong	1606 Sep 03 19:25	10°♊54'46	0°57'50	retrograde	1614 Nov 06 07:29	0°♊	
max. Earth dist.	1606 Sep 02 22:34	10°♊52'50	31.19047 AU		1615 Jan 02 03:09	0°♊52'39	
retrograde	1606 Dec 15 17:46	13°♊22'08		opposition	1615 Mar 02 10:14	30°♊♊	
opposition	1607 Mar 02 23:10	11°♊59'46	1°03'31	min. Earth dist.	1615 Mar 20 12:16	29°♊30'42	1°28'13
min. Earth dist.	1607 Mar 03 17:23	11°♊58'30	29.19465 AU	direct	1615 Mar 21 10:14	29°♊29'11	29.25760 AU
direct	1607 May 22 10:59	10°♊34'27			1615 Jun 09 06:40	28°♊05'39	
max. Earth dist.	1607 Sep 05 10:14	13°♊04'02	31.19807 AU		1615 Sep 07 09:03	0°♊	

max. Earth dist.	1615 Sep 23 04:03	0° <u>♂</u> 34'53	31.25880 AU	max. Earth dist.	1623 Oct 10 19:37	18° <u>♂</u> 01'16	31.29932 AU
conjunction	1615 Sep 24 03:38	0° <u>♂</u> 37'04	1°23'49	retrograde	1624 Jan 21 20:26	20° <u>♂</u> 29'53	
minimum elong	1615 Sep 24 03:37	0° <u>♂</u> 37'04	1°23'49	opposition	1624 Apr 08 14:57	19° <u>♂</u> 08'03	1°46'11
retrograde	1616 Jan 04 13:55	3° <u>♂</u> 03'54		min. Earth dist.	1624 Apr 09 12:32	19° <u>♂</u> 06'34	29.30341 AU
opposition	1616 Mar 21 22:58	1° <u>♂</u> 41'57	1°30'46	direct	1624 Jun 28 15:56	17° <u>♂</u> 43'13	
min. Earth dist.	1616 Mar 22 20:13	1° <u>♂</u> 40'29	29.26156 AU	max. Earth dist.	1624 Oct 12 05:52	20° <u>♂</u> 12'04	31.30491 AU
direct	1616 Jun 10 20:07	0° <u>♂</u> 16'53		conjunction	1624 Oct 13 04:17	20° <u>♂</u> 14'10	1°40'02
conjunction	1616 Sep 25 14:46	2° <u>♂</u> 48'15	1°26'08	minimum elong	1624 Oct 13 04:17	20° <u>♂</u> 14'10	1°40'02
minimum elong	1616 Sep 25 14:46	2° <u>♂</u> 48'15	1°26'08	retrograde	1625 Jan 23 07:39	22° <u>♂</u> 40'44	
max. Earth dist.	1616 Sep 24 14:55	2° <u>♂</u> 46'02	31.26238 AU	opposition	1625 Apr 11 02:14	21° <u>♂</u> 18'56	1°47'27
retrograde	1617 Jan 06 00:41	5° <u>♂</u> 15'00		min. Earth dist.	1625 Apr 11 22:57	21° <u>♂</u> 17'31	29.30832 AU
opposition	1617 Mar 24 09:51	3° <u>♂</u> 53'02	1°33'11	direct	1625 Jul 01 05:19	19° <u>♂</u> 54'10	
min. Earth dist.	1617 Mar 25 08:02	3° <u>♂</u> 51'30	29.26506 AU	conjunction	1625 Oct 15 14:47	22° <u>♂</u> 25'04	1°41'08
direct	1617 Jun 13 08:13	2° <u>♂</u> 27'57		minimum elong	1625 Oct 15 14:47	22° <u>♂</u> 25'04	1°41'08
max. Earth dist.	1617 Sep 27 02:22	4° <u>♂</u> 57'03	31.26579 AU	max. Earth dist.	1625 Oct 14 16:06	22° <u>♂</u> 22'57	31.30905 AU
conjunction	1617 Sep 28 01:47	4° <u>♂</u> 59'14	1°28'20	retrograde	1626 Jan 25 19:02	24° <u>♂</u> 51'38	
minimum elong	1617 Sep 28 01:47	4° <u>♂</u> 59'14	1°28'20	opposition	1626 Apr 13 13:45	23° <u>♂</u> 29'51	1°48'33
retrograde	1618 Jan 08 09:51	7° <u>♂</u> 25'54		min. Earth dist.	1626 Apr 14 11:17	23° <u>♂</u> 28'22	29.31186 AU
opposition	1618 Mar 26 20:39	6° <u>♂</u> 03'55	1°35'28	direct	1626 Jul 03 17:14	22° <u>♂</u> 05'07	
min. Earth dist.	1618 Mar 27 18:20	6° <u>♂</u> 02'25	29.26850 AU	max. Earth dist.	1626 Oct 17 03:03	24° <u>♂</u> 33'54	31.31186 AU
direct	1618 Jun 15 21:42	4° <u>♂</u> 38'49		conjunction	1626 Oct 18 01:17	24° <u>♂</u> 35'58	1°42'06
conjunction	1618 Sep 30 12:36	7° <u>♂</u> 10'02	1°30'25	minimum elong	1626 Oct 18 01:17	24° <u>♂</u> 35'58	1°42'06
minimum elong	1618 Sep 30 12:36	7° <u>♂</u> 10'02	1°30'24	retrograde	1627 Jan 28 04:45	27° <u>♂</u> 02'33	
max. Earth dist.	1618 Sep 29 12:38	7° <u>♂</u> 07'48	31.26948 AU	opposition	1627 Apr 16 01:16	25° <u>♂</u> 40'46	1°49'31
retrograde	1619 Jan 10 19:08	9° <u>♂</u> 36'38		min. Earth dist.	1627 Apr 16 22:22	25° <u>♂</u> 39'19	29.31386 AU
opposition	1619 Mar 29 07:37	8° <u>♂</u> 14'38	1°37'37	direct	1627 Jul 06 06:51	24° <u>♂</u> 16'04	
min. Earth dist.	1619 Mar 30 05:15	8° <u>♂</u> 13'09	29.27274 AU	conjunction	1627 Oct 20 11:31	26° <u>♂</u> 46'51	1°42'55
direct	1619 Jun 18 08:18	6° <u>♂</u> 49'33		minimum elong	1627 Oct 20 11:31	26° <u>♂</u> 46'51	1°42'55
conjunction	1619 Oct 02 23:18	9° <u>♂</u> 20'41	1°32'21	max. Earth dist.	1627 Oct 19 12:29	26° <u>♂</u> 44'42	31.31314 AU
minimum elong	1619 Oct 02 23:18	9° <u>♂</u> 20'41	1°32'21	retrograde	1628 Jan 30 14:48	29° <u>♂</u> 13'26	
max. Earth dist.	1619 Oct 02 00:42	9° <u>♂</u> 18'35	31.27412 AU	opposition	1628 Apr 17 12:47	27° <u>♂</u> 51'37	1°50'18
retrograde	1620 Jan 13 03:03	11° <u>♂</u> 47'14		min. Earth dist.	1628 Apr 18 10:03	27° <u>♂</u> 50'10	29.31454 AU
opposition	1620 Mar 30 18:36	10° <u>♂</u> 25'16	1°39'37	direct	1628 Jul 07 17:50	26° <u>♂</u> 26'57	
min. Earth dist.	1620 Mar 31 16:08	10° <u>♂</u> 23'47	29.27785 AU	conjunction	1628 Oct 21 21:54	28° <u>♂</u> 57'39	1°43'36
direct	1620 Jun 19 20:13	9° <u>♂</u> 00'12		minimum elong	1628 Oct 21 21:54	28° <u>♂</u> 57'39	1°43'35
max. Earth dist.	1620 Oct 03 10:31	11° <u>♂</u> 29'06	31.27977 AU	max. Earth dist.	1628 Oct 20 23:59	28° <u>♂</u> 55'36	31.31318 AU
conjunction	1620 Oct 04 09:56	11° <u>♂</u> 31'17	1°34'10		1628 Nov 19 12:53	0° <u>♂</u>	
minimum elong	1620 Oct 04 09:56	11° <u>♂</u> 31'17	1°34'09	retrograde	1629 Jan 31 22:52	1° <u>♂</u> 24'13	
retrograde	1621 Jan 14 14:05	13° <u>♂</u> 57'48		opposition	1629 Apr 20 00:15	0° <u>♂</u> 02'23	1°50'57
opposition	1621 Apr 02 05:24	12° <u>♂</u> 35'51	1°41'29	min. Earth dist.	1629 Apr 20 21:43	0° <u>♂</u> 00'55	29.31399 AU
min. Earth dist.	1621 Apr 03 02:10	12° <u>♂</u> 34'26	29.28401 AU		1629 Apr 21 11:15	30° <u>♂</u> <u>R</u> <u>♂</u>	
direct	1621 Jun 22 06:04	11° <u>♂</u> 10'50		direct	1629 Jul 10 06:29	28° <u>♂</u> 37'43	
conjunction	1621 Oct 06 20:43	13° <u>♂</u> 41'53	1°35'51		1629 Sep 22 17:10	0° <u>♂</u>	
minimum elong	1621 Oct 06 20:42	13° <u>♂</u> 41'53	1°35'51	max. Earth dist.	1629 Oct 23 09:16	1° <u>♂</u> 06'13	31.31234 AU
max. Earth dist.	1621 Oct 05 22:32	13° <u>♂</u> 39'49	31.28622 AU	conjunction	1629 Oct 24 07:59	1° <u>♂</u> 08'20	1°44'07
retrograde	1622 Jan 16 22:47	16° <u>♂</u> 08'25		minimum elong	1629 Oct 24 07:59	1° <u>♂</u> 08'20	1°44'07
opposition	1622 Apr 04 16:35	14° <u>♂</u> 46'30	1°43'12	retrograde	1630 Feb 03 09:54	3° <u>♂</u> 34'55	
min. Earth dist.	1622 Apr 05 14:02	14° <u>♂</u> 45'02	29.29065 AU	opposition	1630 Apr 22 11:48	2° <u>♂</u> 13'02	1°51'26
direct	1622 Jun 24 17:39	13° <u>♂</u> 21'33		min. Earth dist.	1630 Apr 23 08:21	2° <u>♂</u> 11'38	29.31301 AU
max. Earth dist.	1622 Oct 08 08:17	15° <u>♂</u> 50'26	31.29298 AU	direct	1630 Jul 12 17:04	0° <u>♂</u> 48'22	
conjunction	1622 Oct 09 07:07	15° <u>♂</u> 52'34	1°37'23	conjunction	1630 Oct 26 17:58	3° <u>♂</u> 18'54	1°44'30
minimum elong	1622 Oct 09 07:07	15° <u>♂</u> 52'34	1°37'23	minimum elong	1630 Oct 26 17:58	3° <u>♂</u> 18'54	1°44'29
retrograde	1623 Jan 19 10:22	18° <u>♂</u> 19'06		max. Earth dist.	1630 Oct 25 20:43	3° <u>♂</u> 16'54	31.31123 AU
opposition	1623 Apr 07 03:42	16° <u>♂</u> 57'14	1°44'46	retrograde	1631 Feb 05 18:07	5° <u>♂</u> 45'29	
min. Earth dist.	1623 Apr 08 00:09	16° <u>♂</u> 55'50	29.29733 AU	opposition	1631 Apr 24 23:32	4° <u>♂</u> 23'34	1°51'46
direct	1623 Jun 27 05:18	15° <u>♂</u> 32'21		min. Earth dist.	1631 Apr 25 20:26	4° <u>♂</u> 22'09	29.31203 AU
conjunction	1623 Oct 11 17:46	18° <u>♂</u> 03'19	1°38'47	direct	1631 Jul 15 04:57	2° <u>♂</u> 58'55	
minimum elong	1623 Oct 11 17:46	18° <u>♂</u> 03'19	1°38'47	max. Earth dist.	1631 Oct 28 06:21	5° <u>♂</u> 27'21	31.31059 AU
				conjunction	1631 Oct 29 03:48	5° <u>♂</u> 29'21	1°44'44

minimum elong	1631 Oct 29 03:48	5°M.29'21	1°44'44	max. Earth dist.	1639 Nov 14 16:52	22°M.53'09	31.31090 AU
retrograde	1632 Feb 08 05:09	7°M.55'58		retrograde	1640 Feb 25 16:20	25°M.21'52	
opposition	1632 Apr 26 10:58	6°M.34'02	1°51'56	opposition	1640 May 14 10:30	23°M.59'52	1°47'29
min. Earth dist.	1632 Apr 27 06:19	6°M.32'42	29.31177 AU	min. Earth dist.	1640 May 15 03:36	23°M.58'42	29.30999 AU
direct	1632 Jul 16 15:59	5°M.09'24		direct	1640 Aug 03 15:09	22°M.35'39	
conjunction	1632 Oct 30 13:44	7°M.39'46	1°44'48	conjunction	1640 Nov 16 19:27	25°M.05'31	1°40'02
minimum elong	1632 Oct 30 13:44	7°M.39'46	1°44'48	minimum elong	1640 Nov 16 19:27	25°M.05'31	1°40'02
max. Earth dist.	1632 Oct 29 17:25	7°M.37'52	31.31068 AU	max. Earth dist.	1640 Nov 16 02:06	25°M.03'53	31.30664 AU
retrograde	1633 Feb 09 15:08	10°M.06'26		retrograde	1641 Feb 27 03:09	27°M.32'41	
opposition	1633 Apr 28 22:44	8°M.44'29	1°51'56	opposition	1641 May 16 22:39	26°M.10'37	1°46'13
min. Earth dist.	1633 Apr 29 18:31	8°M.43'08	29.31231 AU	min. Earth dist.	1641 May 17 14:24	26°M.09'33	29.30502 AU
direct	1633 Jul 19 01:47	7°M.19'54		direct	1641 Aug 06 02:23	24°M.46'24	
conjunction	1633 Nov 01 23:28	9°M.50'13	1°44'44	conjunction	1641 Nov 19 04:57	27°M.16'09	1°38'47
minimum elong	1633 Nov 01 23:28	9°M.50'13	1°44'44	minimum elong	1641 Nov 19 04:57	27°M.16'09	1°38'48
max. Earth dist.	1633 Nov 01 03:43	9°M.48'22	31.31168 AU	max. Earth dist.	1641 Nov 18 12:32	27°M.14'37	31.30113 AU
retrograde	1634 Feb 12 02:21	12°M.16'57		retrograde	1642 Mar 01 13:05	29°M.43'23	
opposition	1634 May 01 10:25	10°M.55'00	1°51'46	opposition	1642 May 19 11:00	28°M.21'14	1°44'49
min. Earth dist.	1634 May 02 04:38	10°M.53'46	29.31350 AU	min. Earth dist.	1642 May 20 03:16	28°M.20'07	29.29918 AU
direct	1634 Jul 21 15:07	9°M.30'30		direct	1642 Aug 08 12:43	26°M.57'00	
conjunction	1634 Nov 04 09:13	12°M.00'46	1°44'31	conjunction	1642 Nov 21 14:21	29°M.26'39	1°37'24
minimum elong	1634 Nov 04 09:13	12°M.00'46	1°44'31	minimum elong	1642 Nov 21 14:22	29°M.26'39	1°37'24
max. Earth dist.	1634 Nov 03 13:47	11°M.58'57	31.31308 AU	max. Earth dist.	1642 Nov 20 22:43	29°M.25'10	31.29521 AU
retrograde	1635 Feb 14 14:41	14°M.27'34			1642 Dec 06 11:26	0° 2	
opposition	1635 May 03 22:17	13°M.05'38	1°51'27	retrograde	1643 Mar 03 23:59	1° 2 53'55	
min. Earth dist.	1635 May 04 16:42	13°M.04'23	29.31506 AU	opposition	1643 May 21 23:09	0° 2 31'41	1°43'16
direct	1635 Jul 24 02:28	11°M.41'12		min. Earth dist.	1643 May 22 13:43	0° 2 30'42	29.29317 AU
conjunction	1635 Nov 06 18:54	14°M.11'26	1°44'08		1643 Jun 10 22:41	30° R M	
minimum elong	1635 Nov 06 18:54	14°M.11'26	1°44'08	direct	1643 Aug 11 01:52	29°M.07'27	
max. Earth dist.	1635 Nov 06 00:35	14°M.09'43	31.31459 AU		1643 Oct 08 04:09	0° 2	
	1635 Nov 28 17:29	15°M.		conjunction	1643 Nov 23 23:37	1° 2 37'00	1°35'53
retrograde	1636 Feb 17 00:35	16°M.38'18		minimum elong	1643 Nov 23 23:37	1° 2 37'00	1°35'53
opposition	1636 May 05 10:09	15°M.16'22	1°50'58	max. Earth dist.	1643 Nov 23 08:23	1° 2 35'34	31.28935 AU
min. Earth dist.	1636 May 06 03:48	15°M.15'11	29.31621 AU	retrograde	1644 Mar 05 11:57	4° 2 04'20	
	1636 May 15 12:53	15° R M		opposition	1644 May 23 11:27	2° 2 42'02	1°41'34
direct	1636 Jul 25 15:39	13°M.52'00		min. Earth dist.	1644 May 24 01:49	2° 2 41'03	29.28768 AU
	1636 Sep 30 12:52	15°M.		direct	1644 Aug 12 12:44	1° 2 17'49	
max. Earth dist.	1636 Nov 07 09:47	16°M.20'26	31.31540 AU	conjunction	1644 Nov 25 08:55	3° 2 47'17	1°34'13
conjunction	1636 Nov 08 04:36	16°M.22'12	1°43'36	minimum elong	1644 Nov 25 08:56	3° 2 47'17	1°34'12
minimum elong	1636 Nov 08 04:36	16°M.22'12	1°43'36	max. Earth dist.	1644 Nov 24 19:20	3° 2 46'00	31.28428 AU
retrograde	1637 Feb 18 11:30	18°M.49'08		retrograde	1645 Mar 07 21:48	6° 2 14'42	
opposition	1637 May 07 22:03	17°M.27'13	1°50'20	opposition	1645 May 25 23:40	4° 2 52'21	1°39'43
min. Earth dist.	1637 May 08 15:32	17°M.26'02	29.31664 AU	min. Earth dist.	1645 May 26 12:38	4° 2 51'28	29.28295 AU
direct	1637 Jul 28 02:38	16°M.02'54		direct	1645 Aug 15 01:35	3° 2 28'10	
conjunction	1637 Nov 10 14:27	18°M.33'02	1°42'56	conjunction	1645 Nov 27 18:08	5° 2 57'35	1°32'26
minimum elong	1637 Nov 10 14:27	18°M.33'02	1°42'56	minimum elong	1645 Nov 27 18:08	5° 2 57'35	1°32'26
max. Earth dist.	1637 Nov 09 21:03	18°M.31'24	31.31527 AU	max. Earth dist.	1645 Nov 27 04:35	5° 2 56'18	31.28015 AU
retrograde	1638 Feb 20 20:37	21°M.00'02		retrograde	1646 Mar 10 09:31	8° 2 25'07	
opposition	1638 May 10 10:16	19°M.38'06	1°49'32	opposition	1646 May 28 12:03	7° 2 02'44	1°37'44
min. Earth dist.	1638 May 11 03:42	19°M.36'55	29.31581 AU	min. Earth dist.	1646 May 29 00:06	7° 2 01'55	29.27934 AU
direct	1638 Jul 30 16:04	18°M.13'51		direct	1646 Aug 17 12:28	5° 2 38'37	
max. Earth dist.	1638 Nov 12 05:53	20°M.42'12	31.31383 AU	conjunction	1646 Nov 30 03:21	8° 2 07'59	1°30'30
conjunction	1638 Nov 13 00:01	20°M.43'54	1°42'07	minimum elong	1646 Nov 30 03:21	8° 2 07'59	1°30'29
minimum elong	1638 Nov 13 00:01	20°M.43'54	1°42'06	max. Earth dist.	1646 Nov 29 15:53	8° 2 06'54	31.27695 AU
retrograde	1639 Feb 23 08:13	23°M.10'58		retrograde	1647 Mar 12 19:16	10° 2 35'38	
opposition	1639 May 12 22:23	21°M.49'01	1°48'35	opposition	1647 May 31 00:30	9° 2 13'15	1°35'36
min. Earth dist.	1639 May 13 14:52	21°M.47'54	29.31368 AU	min. Earth dist.	1647 May 31 11:59	9° 2 12'29	29.27632 AU
direct	1639 Aug 02 03:16	20°M.24'47		direct	1647 Aug 20 01:37	7° 2 49'13	
conjunction	1639 Nov 15 09:49	22°M.54'45	1°41'09	conjunction	1647 Dec 02 12:32	10° 2 18'32	1°28'26
minimum elong	1639 Nov 15 09:49	22°M.54'45	1°41'09	minimum elong	1647 Dec 02 12:32	10° 2 18'32	1°28'26

max. Earth dist.	1647 Dec 02 00:53	10°♄17'27	31.27424 AU			1656 May 03 00:16	30°♄♂	
retrograde	1648 Mar 14 07:27	12°♄46'20		opposition		1656 Jun 19 18:33	28°♄53'19	1°10'36
opposition	1648 Jun 01 12:44	11°♄23'57	1°33'19	min. Earth dist.		1656 Jun 19 23:53	28°♄52'57	29.22246 AU
min. Earth dist.	1648 Jun 01 22:49	11°♄23'16	29.27364 AU	direct		1656 Sep 08 09:04	27°♄29'37	
direct	1648 Aug 21 12:24	10°♄00'00						
				conjunction		1656 Dec 21 00:26	29°♄58'20	1°04'32
conjunction	1648 Dec 03 21:55	12°♄29'17	1°26'14	minimum elong		1656 Dec 21 00:26	29°♄58'21	1°04'31
minimum elong	1648 Dec 03 21:55	12°♄29'17	1°26'14	max. Earth dist.		1656 Dec 20 19:17	29°♄57'51	31.21793 AU
max. Earth dist.	1648 Dec 03 11:50	12°♄28'20	31.27146 AU			1656 Dec 21 17:59	0°♂	
retrograde	1649 Mar 16 16:19	14°♄57'14		retrograde		1657 Apr 03 12:42	2°♂27'14	
opposition	1649 Jun 04 01:24	13°♄34'51	1°30'55	opposition		1657 Jun 22 07:20	1°♂04'20	1°07'16
min. Earth dist.	1649 Jun 04 11:40	13°♄34'09	29.27064 AU	min. Earth dist.		1657 Jun 22 10:52	1°♂04'06	29.21438 AU
direct	1649 Aug 23 23:57	12°♄10'59				1657 Aug 06 11:20	30°♄♂	
				direct		1657 Sep 10 20:09	29°♄40'39	
conjunction	1649 Dec 06 07:06	14°♄40'14	1°23'55			1657 Oct 15 03:58	0°♂	
minimum elong	1649 Dec 06 07:06	14°♄40'14	1°23'56	conjunction		1657 Dec 23 09:38	2°♂09'18	1°01'21
max. Earth dist.	1649 Dec 05 21:10	14°♄39'17	31.26828 AU	minimum elong		1657 Dec 23 09:38	2°♂09'18	1°01'22
retrograde	1650 Mar 19 03:43	17°♄08'19		max. Earth dist.		1657 Dec 23 06:19	2°♂09'00	31.21028 AU
opposition	1650 Jun 06 14:01	15°♄45'55	1°28'22	retrograde		1658 Apr 05 21:52	4°♂38'19	
min. Earth dist.	1650 Jun 06 22:39	15°♄45'21	29.26700 AU	opposition		1658 Jun 24 20:19	3°♂15'22	1°03'49
direct	1650 Aug 26 10:41	14°♄22'07		min. Earth dist.		1658 Jun 24 23:33	3°♂15'09	29.20720 AU
				direct		1658 Sep 13 08:28	1°♂51'44	
conjunction	1650 Dec 08 16:31	16°♄51'20	1°21'29					
minimum elong	1650 Dec 08 16:32	16°♄51'20	1°21'29	conjunction		1658 Dec 25 18:52	4°♂20'19	0°58'05
max. Earth dist.	1650 Dec 08 07:25	16°♄50'28	31.26412 AU	minimum elong		1658 Dec 25 18:53	4°♂20'19	0°58'05
retrograde	1651 Mar 21 14:34	19°♄19'34		max. Earth dist.		1658 Dec 25 16:13	4°♂20'04	31.20371 AU
opposition	1651 Jun 09 02:46	17°♄57'09	1°25'42	retrograde		1659 Apr 08 09:34	6°♂49'28	
min. Earth dist.	1651 Jun 09 11:55	17°♄56'32	29.26233 AU	opposition		1659 Jun 27 09:00	5°♂26'29	1°00'17
direct	1651 Aug 28 20:18	16°♄33'24		min. Earth dist.		1659 Jun 27 10:10	5°♂26'24	29.20097 AU
				direct		1659 Sep 15 19:48	4°♂02'53	
conjunction	1651 Dec 11 01:56	19°♄02'33	1°18'55					
minimum elong	1651 Dec 11 01:56	19°♄02'33	1°18'56	conjunction		1659 Dec 28 04:10	6°♂31'26	0°54'44
max. Earth dist.	1651 Dec 10 17:32	19°♄01'45	31.25889 AU	minimum elong		1659 Dec 28 04:10	6°♂31'26	0°54'45
retrograde	1652 Mar 23 02:07	21°♄30'55		max. Earth dist.		1659 Dec 28 02:35	6°♂31'17	31.19777 AU
opposition	1652 Jun 10 15:26	20°♄08'27	1°22'54	retrograde		1660 Apr 09 20:33	9°♂00'45	
min. Earth dist.	1652 Jun 10 23:05	20°♄07'56	29.25626 AU	opposition		1660 Jun 28 22:00	7°♂37'44	0°56'39
direct	1652 Aug 30 09:05	18°♄44'44		min. Earth dist.		1660 Jun 28 23:18	7°♂37'39	29.19526 AU
				direct		1660 Sep 17 05:55	6°♂14'12	
conjunction	1652 Dec 12 11:18	21°♄13'49	1°16'15					
minimum elong	1652 Dec 12 11:18	21°♄13'49	1°16'14	conjunction		1660 Dec 29 13:28	8°♂42'42	0°51'18
max. Earth dist.	1652 Dec 12 02:49	21°♄13'01	31.25212 AU	minimum elong		1660 Dec 29 13:29	8°♂42'42	0°51'17
retrograde	1653 Mar 25 14:56	23°♄42'19		max. Earth dist.		1660 Dec 29 13:12	8°♂42'41	31.19225 AU
opposition	1653 Jun 13 04:16	22°♄19'47	1°20'00	retrograde		1661 Apr 12 07:59	11°♂12'12	
min. Earth dist.	1653 Jun 13 12:03	22°♄19'15	29.24886 AU	opposition		1661 Jul 01 10:56	9°♂49'09	0°52'56
direct	1653 Sep 01 19:10	20°♄56'05		min. Earth dist.		1661 Jul 01 10:23	9°♂49'11	29.18962 AU
				direct		1661 Sep 19 17:44	8°♂25'41	
conjunction	1653 Dec 14 20:46	23°♄25'05	1°13'28					
minimum elong	1653 Dec 14 20:46	23°♄25'05	1°13'29	conjunction		1661 Dec 31 22:51	10°♂54'10	0°47'47
max. Earth dist.	1653 Dec 14 13:43	23°♄24'25	31.24421 AU	minimum elong		1661 Dec 31 22:52	10°♂54'10	0°47'47
retrograde	1654 Mar 28 01:20	25°♄53'40		max. Earth dist.		1661 Dec 31 22:44	10°♂54'09	31.18654 AU
opposition	1654 Jun 15 17:05	24°♄31'04	1°16'58	retrograde		1662 Apr 14 21:02	13°♂23'51	
min. Earth dist.	1654 Jun 15 23:44	24°♄30'37	29.24033 AU	opposition		1662 Jul 04 00:05	12°♂00'46	0°49'08
direct	1654 Sep 04 07:47	23°♄07'22		min. Earth dist.		1662 Jul 03 23:28	12°♂00'49	29.18377 AU
				direct		1662 Sep 22 02:54	10°♂37'22	
conjunction	1654 Dec 17 05:54	25°♄36'16	1°10'35					
minimum elong	1654 Dec 17 05:54	25°♄36'16	1°10'35	conjunction		1663 Jan 03 08:24	13°♂05'49	0°44'11
max. Earth dist.	1654 Dec 16 22:41	25°♄35'35	31.23543 AU	minimum elong		1663 Jan 03 08:24	13°♂05'49	0°44'10
retrograde	1655 Mar 30 13:57	28°♄04'57		max. Earth dist.		1663 Jan 03 09:54	13°♂05'58	31.18035 AU
opposition	1655 Jun 18 05:53	26°♄42'14	1°13'50	retrograde		1663 Apr 17 08:30	15°♂35'40	
min. Earth dist.	1655 Jun 18 11:50	26°♄41'50	29.23138 AU	opposition		1663 Jul 06 13:11	14°♂12'34	0°45'15
direct	1655 Sep 06 19:23	25°♄18'32		min. Earth dist.		1663 Jul 06 11:28	14°♂12'41	29.17699 AU
				direct		1663 Sep 24 14:59	12°♂49'13	
conjunction	1655 Dec 19 15:17	27°♄47'21	1°07'37					
minimum elong	1655 Dec 19 15:17	27°♄47'21	1°07'37	conjunction		1664 Jan 05 17:59	15°♂17'39	0°40'32
max. Earth dist.	1655 Dec 19 10:02	27°♄46'51	31.22643 AU	minimum elong		1664 Jan 05 17:59	15°♂17'39	0°40'32
	1656 Feb 29 19:13	0°♂		max. Earth dist.		1664 Jan 05 19:01	15°♂17'45	31.17305 AU
retrograde	1656 Apr 01 00:30	0°♂16'07						

retrograde	1664 Apr 18 22:24	17° $\overline{3}$ 47'40		minimum elong	1672 Jan 22 23:41	2° \approx 53'57	0°09'39
opposition	1664 Jul 08 02:16	16° $\overline{3}$ 24'31	0°41'19	behind sun begin	1672 Jan 22 18:22	2° \approx 53'28	
min. Earth dist.	1664 Jul 08 00:07	16° $\overline{3}$ 24'40	29.16910 AU	behind sun end	1672 Jan 23 05:00	2° \approx 54'25	
direct	1664 Sep 26 01:50	15° $\overline{3}$ 01'13		max. Earth dist.	1672 Jan 23 08:28	2° \approx 54'46	31.09007 AU
				retrograde	1672 May 06 20:12	5° \approx 25'10	
conjunction	1665 Jan 07 03:48	17° $\overline{3}$ 29'38	0°36'49	opposition	1672 Jul 26 11:17	4° \approx 01'23	0°08'06
minimum elong	1665 Jan 07 03:48	17° $\overline{3}$ 29'38	0°36'48	min. Earth dist.	1672 Jul 26 02:03	4° \approx 02'01	29.08592 AU
max. Earth dist.	1665 Jan 07 06:27	17° $\overline{3}$ 29'53	31.16442 AU	direct	1672 Oct 13 22:31	2° \approx 38'10	
retrograde	1665 Apr 21 10:23	19° $\overline{3}$ 59'48					
opposition	1665 Jul 10 15:34	18° $\overline{3}$ 36'35	0°37'18	conjunction	1673 Jan 24 09:30	5° \approx 06'15	0°05'40
min. Earth dist.	1665 Jul 10 13:06	18° $\overline{3}$ 36'45	29.15968 AU	minimum elong	1673 Jan 24 09:30	5° \approx 06'15	0°05'40
direct	1665 Sep 28 15:02	17° $\overline{3}$ 13'19		behind sun begin	1673 Jan 24 03:20	5° \approx 05'41	
				behind sun end	1673 Jan 24 15:39	5° \approx 06'48	
conjunction	1666 Jan 09 13:23	19° $\overline{3}$ 41'41	0°33'03	max. Earth dist.	1673 Jan 24 18:13	5° \approx 07'03	31.08192 AU
minimum elong	1666 Jan 09 13:23	19° $\overline{3}$ 41'41	0°33'03	retrograde	1673 May 09 10:35	7° \approx 37'39	
max. Earth dist.	1666 Jan 09 15:43	19° $\overline{3}$ 41'54	31.15444 AU	opposition	1673 Jul 29 00:30	6° \approx 13'49	0°03'49
retrograde	1666 Apr 23 23:36	22° $\overline{3}$ 12'00		min. Earth dist.	1673 Jul 28 14:30	6° \approx 14'30	29.07809 AU
opposition	1666 Jul 13 04:48	20° $\overline{3}$ 48'42	0°33'15	direct	1673 Oct 16 08:37	4° \approx 50'39	
min. Earth dist.	1666 Jul 13 01:04	20° $\overline{3}$ 48'57	29.14905 AU				
direct	1666 Oct 01 02:14	19° $\overline{3}$ 25'26		conjunction	1674 Jan 26 19:26	7° \approx 18'43	0°01'39
				minimum elong	1674 Jan 26 19:27	7° \approx 18'43	0°01'39
conjunction	1667 Jan 11 23:11	21° $\overline{3}$ 53'44	0°29'14	behind sun begin	1674 Jan 26 13:02	7° \approx 18'08	
minimum elong	1667 Jan 11 23:11	21° $\overline{3}$ 53'44	0°29'14	behind sun end	1674 Jan 27 01:51	7° \approx 19'18	
max. Earth dist.	1667 Jan 12 02:48	21° $\overline{3}$ 54'05	31.14322 AU	max. Earth dist.	1674 Jan 27 06:08	7° \approx 19'43	31.07419 AU
retrograde	1667 Apr 26 09:48	24° $\overline{3}$ 24'12		retrograde	1674 May 11 23:05	9° \approx 50'18	
opposition	1667 Jul 15 17:54	23° $\overline{3}$ 00'48	0°29'09	desc. node	1674 Jun 21 15:07	9° \approx 25'12	
min. Earth dist.	1667 Jul 15 14:20	23° $\overline{3}$ 01'03	29.13744 AU	opposition	1674 Jul 31 13:44	8° \approx 26'26	0°00'-27
direct	1667 Oct 03 15:04	21° $\overline{3}$ 37'31		min. Earth dist.	1674 Jul 31 03:13	8° \approx 27'09	29.07037 AU
				direct	1674 Oct 18 20:36	7° \approx 03'18	
conjunction	1668 Jan 14 08:51	24° $\overline{3}$ 05'46	0°25'22				
minimum elong	1668 Jan 14 08:51	24° $\overline{3}$ 05'46	0°25'23	conjunction	1675 Jan 29 05:32	9° \approx 31'22	0°-2'-28
max. Earth dist.	1668 Jan 14 12:58	24° $\overline{3}$ 06'09	31.13152 AU	minimum elong	1675 Jan 29 05:31	9° \approx 31'22	0°02'30
retrograde	1668 Apr 27 22:20	26° $\overline{3}$ 36'21		behind sun begin	1675 Jan 28 23:07	9° \approx 30'48	
opposition	1668 Jul 17 06:57	25° $\overline{3}$ 12'52	0°25'00	behind sun end	1675 Jan 29 11:55	9° \approx 31'57	
min. Earth dist.	1668 Jul 17 01:31	25° $\overline{3}$ 13'14	29.12565 AU	max. Earth dist.	1675 Jan 29 16:05	9° \approx 32'22	31.06648 AU
direct	1668 Oct 05 03:21	23° $\overline{3}$ 49'34		retrograde	1675 May 14 13:04	12° \approx 03'07	
				opposition	1675 Aug 03 02:46	10° \approx 39'13	0°-4'-45
conjunction	1669 Jan 15 18:25	26° $\overline{3}$ 17'45	0°21'29	min. Earth dist.	1675 Aug 02 15:06	10° \approx 40'00	29.06251 AU
minimum elong	1669 Jan 15 18:25	26° $\overline{3}$ 17'45	0°21'28	direct	1675 Oct 21 07:00	9° \approx 16'07	
max. Earth dist.	1669 Jan 15 23:31	26° $\overline{3}$ 18'14	31.11979 AU				
retrograde	1669 Apr 30 09:05	28° $\overline{3}$ 48'30		conjunction	1676 Jan 31 15:49	11° \approx 44'12	0°-6'-29
opposition	1669 Jul 19 20:11	27° $\overline{3}$ 24'54	0°20'50	minimum elong	1676 Jan 31 15:49	11° \approx 44'12	0°06'29
min. Earth dist.	1669 Jul 19 14:47	27° $\overline{3}$ 25'16	29.11430 AU	behind sun begin	1676 Jan 31 09:46	11° \approx 43'39	
direct	1669 Oct 07 14:10	26° $\overline{3}$ 01'37		behind sun end	1676 Jan 31 21:51	11° \approx 44'45	
				max. Earth dist.	1676 Feb 01 03:29	11° \approx 45'17	31.05818 AU
conjunction	1670 Jan 18 04:10	28° $\overline{3}$ 29'45	0°17'34	retrograde	1676 May 16 01:21	14° \approx 16'07	
minimum elong	1670 Jan 18 04:10	28° $\overline{3}$ 29'45	0°17'34	opposition	1676 Aug 04 16:04	12° \approx 52'09	0°-9'-2
max. Earth dist.	1670 Jan 18 10:46	28° $\overline{3}$ 30'22	31.10892 AU	min. Earth dist.	1676 Aug 04 04:41	12° \approx 52'55	29.05383 AU
	1670 Mar 01 15:32	0° \approx		direct	1676 Oct 22 19:58	11° \approx 29'05	
retrograde	1670 May 02 20:06	1° \approx 00'38					
	1670 Jul 08 01:15	30° \overline{R} $\overline{3}$		conjunction	1677 Feb 02 02:04	13° \approx 57'09	0°-10'-28
opposition	1670 Jul 22 09:12	29° $\overline{3}$ 36'58	0°16'37	minimum elong	1677 Feb 02 02:04	13° \approx 57'09	0°10'30
min. Earth dist.	1670 Jul 22 01:44	29° $\overline{3}$ 37'28	29.10388 AU	behind sun begin	1677 Feb 01 21:01	13° \approx 56'41	
direct	1670 Oct 10 01:59	28° $\overline{3}$ 13'41		behind sun end	1677 Feb 02 07:07	13° \approx 57'36	
	1671 Jan 01 23:48	0° \approx		max. Earth dist.	1677 Feb 02 14:01	13° \approx 58'16	31.04907 AU
					1677 Mar 02 12:06	15° \approx	
conjunction	1671 Jan 20 13:50	0° \approx 41'47	0°13'37	retrograde	1677 May 18 15:37	16° \approx 29'13	
minimum elong	1671 Jan 20 13:50	0° \approx 41'47	0°13'36	opposition	1677 Aug 07 05:20	15° \approx 05'10	0°-13'-19
behind sun begin	1671 Jan 20 10:12	0° \approx 41'28		min. Earth dist.	1677 Aug 06 16:26	15° \approx 06'03	29.04413 AU
behind sun end	1671 Jan 20 17:27	0° \approx 42'07			1677 Aug 10 09:27	15° \overline{R} \approx	
max. Earth dist.	1671 Jan 20 20:41	0° \approx 42'25	31.09899 AU	direct	1677 Oct 25 08:37	13° \approx 42'07	
retrograde	1671 May 05 08:38	3° \approx 12'51			1678 Jan 03 11:45	15° \approx	
opposition	1671 Jul 24 22:20	1° \approx 49'07	0°12'22				
min. Earth dist.	1671 Jul 24 14:33	1° \approx 49'38	29.09452 AU	conjunction	1678 Feb 04 12:32	16° \approx 10'09	0°-14'-27
direct	1671 Oct 12 10:42	0° \approx 25'51		minimum elong	1678 Feb 04 12:32	16° \approx 10'09	0°14'27
				behind sun begin	1678 Feb 04 09:31	16° \approx 09'53	
conjunction	1672 Jan 22 23:41	2° \approx 53'57	0°09'39	behind sun end	1678 Feb 04 15:32	16° \approx 10'26	

max. Earth dist.	1678 Feb 05 00:48	16° \approx 11'19	31.03869 AU	max. Earth dist.	1686 Feb 22 19:46	3° ∇ 55'47	30.95821 AU
retrograde	1678 May 21 03:00	18° \approx 42'22		retrograde	1686 Jun 08 10:43	6° ∇ 27'19	
opposition	1678 Aug 09 18:39	17° \approx 18'14	0°-17'-34	min. Earth dist.	1686 Aug 27 07:36	5° ∇ 03'57	28.95550 AU
min. Earth dist.	1678 Aug 09 06:24	17° \approx 19'05	29.03326 AU	opposition	1686 Aug 28 02:45	5° ∇ 02'38	0°-50'-12
direct	1678 Oct 27 19:49	15° \approx 55'10		direct	1686 Nov 14 14:36	3° ∇ 39'33	
conjunction	1679 Feb 06 23:04	18° \approx 23'10	0°-18'-25	conjunction	1687 Feb 24 12:11	6° ∇ 07'34	0°-48'-44
minimum elong	1679 Feb 06 23:04	18° \approx 23'10	0°18'26	minimum elong	1687 Feb 24 12:11	6° ∇ 07'34	0°48'46
max. Earth dist.	1679 Feb 07 12:20	18° \approx 24'25	31.02734 AU	max. Earth dist.	1687 Feb 25 07:11	6° ∇ 09'22	30.95215 AU
retrograde	1679 May 23 14:34	20° \approx 55'29		retrograde	1687 Jun 10 22:54	8° ∇ 41'02	
opposition	1679 Aug 12 07:46	19° \approx 31'16	0°-21'-48	opposition	1687 Aug 30 15:48	7° ∇ 16'20	0°-54'-1
min. Earth dist.	1679 Aug 11 18:03	19° \approx 32'12	29.02140 AU	min. Earth dist.	1687 Aug 29 21:16	7° ∇ 17'36	28.94965 AU
direct	1679 Oct 30 08:27	18° \approx 08'09		direct	1687 Nov 17 01:24	5° ∇ 53'18	
conjunction	1680 Feb 09 09:27	20° \approx 36'07	0°-22'-21	conjunction	1688 Feb 26 23:22	8° ∇ 21'21	0°-52'-16
minimum elong	1680 Feb 09 09:26	20° \approx 36'07	0°22'22	minimum elong	1688 Feb 26 23:21	8° ∇ 21'21	0°52'17
max. Earth dist.	1680 Feb 09 22:29	20° \approx 37'21	31.01518 AU	max. Earth dist.	1688 Feb 27 19:24	8° ∇ 23'15	30.94628 AU
retrograde	1680 May 25 02:54	23° \approx 08'33		retrograde	1688 Jun 12 11:55	10° ∇ 54'58	
opposition	1680 Aug 13 20:55	21° \approx 44'13	0°-26'00	min. Earth dist.	1688 Aug 31 08:52	9° ∇ 31'37	28.94365 AU
min. Earth dist.	1680 Aug 13 07:22	21° \approx 45'09	29.00925 AU	opposition	1688 Sep 01 04:41	9° ∇ 30'15	0°-57'-46
direct	1680 Oct 31 18:19	20° \approx 21'04		direct	1688 Nov 18 13:57	8° ∇ 07'16	
conjunction	1681 Feb 10 20:01	22° \approx 48'59	0°-26'-16	conjunction	1689 Feb 28 10:37	10° ∇ 35'22	0°-55'-44
minimum elong	1681 Feb 10 20:00	22° \approx 48'59	0°26'17	minimum elong	1689 Feb 28 10:37	10° ∇ 35'22	0°55'45
max. Earth dist.	1681 Feb 11 10:49	22° \approx 50'23	31.00311 AU	max. Earth dist.	1689 Mar 01 06:06	10° ∇ 37'13	30.93997 AU
retrograde	1681 May 27 14:24	25° \approx 21'33		retrograde	1689 Jun 15 01:39	13° ∇ 09'08	
opposition	1681 Aug 16 09:59	23° \approx 57'06	0°-30'-10	opposition	1689 Sep 03 17:47	11° ∇ 44'23	-1°-1'-25
min. Earth dist.	1681 Aug 15 19:04	23° \approx 58'08	28.99744 AU	min. Earth dist.	1689 Sep 02 22:34	11° ∇ 45'43	28.93711 AU
direct	1681 Nov 03 06:40	22° \approx 33'56		direct	1689 Nov 20 23:55	10° ∇ 21'25	
conjunction	1682 Feb 13 06:23	25° \approx 01'49	0°-30'-8	conjunction	1690 Mar 02 22:11	12° ∇ 49'33	0°-59'-6
minimum elong	1682 Feb 13 06:23	25° \approx 01'49	0°30'08	minimum elong	1690 Mar 02 22:10	12° ∇ 49'33	0°59'06
max. Earth dist.	1682 Feb 13 21:03	25° \approx 03'12	30.99174 AU	max. Earth dist.	1690 Mar 03 18:49	12° ∇ 51'30	30.93290 AU
retrograde	1682 May 30 04:03	27° \approx 34'31		retrograde	1690 Jun 17 13:23	15° ∇ 23'26	
opposition	1682 Aug 18 23:04	26° \approx 09'59	0°-34'-17	min. Earth dist.	1690 Sep 05 10:49	14° ∇ 00'02	28.92946 AU
min. Earth dist.	1682 Aug 18 07:30	26° \approx 11'03	28.98670 AU	opposition	1690 Sep 06 06:46	13° ∇ 58'39	-1°-4'-59
direct	1682 Nov 05 16:33	24° \approx 46'47		direct	1690 Nov 23 12:35	12° ∇ 35'40	
conjunction	1683 Feb 15 17:05	27° \approx 14'40	0°-33'-57	conjunction	1691 Mar 05 09:44	15° ∇ 03'48	-1°-2'-24
minimum elong	1683 Feb 15 17:05	27° \approx 14'40	0°33'58	minimum elong	1691 Mar 05 09:44	15° ∇ 03'48	1°02'25
max. Earth dist.	1683 Feb 16 09:40	27° \approx 16'14	30.98145 AU	max. Earth dist.	1691 Mar 06 05:24	15° ∇ 05'40	30.92473 AU
retrograde	1683 Jun 01 16:02	29° \approx 47'30		retrograde	1691 Jun 20 02:26	17° ∇ 37'48	
opposition	1683 Aug 21 11:54	28° \approx 22'54	0°-38'-21	opposition	1691 Sep 08 19:38	16° ∇ 12'57	-1°-8'-27
min. Earth dist.	1683 Aug 20 19:44	28° \approx 24'01	28.97707 AU	min. Earth dist.	1691 Sep 07 23:51	16° ∇ 14'18	28.92088 AU
direct	1683 Nov 08 03:56	26° \approx 59'43		direct	1691 Nov 25 22:26	14° ∇ 49'56	
conjunction	1684 Feb 18 03:42	29° \approx 27'37	0°-37'-44	conjunction	1692 Mar 06 21:25	17° ∇ 18'04	-1°-5'-35
minimum elong	1684 Feb 18 03:41	29° \approx 27'37	0°37'44	minimum elong	1692 Mar 06 21:25	17° ∇ 18'04	1°05'36
max. Earth dist.	1684 Feb 18 20:18	29° \approx 29'11	30.97254 AU	max. Earth dist.	1692 Mar 07 18:21	17° ∇ 20'03	30.91569 AU
	1684 Mar 03 11:17	0° ∇		retrograde	1692 Jun 21 14:11	19° ∇ 52'08	
retrograde	1684 Jun 03 06:26	2° ∇ 00'36		opposition	1692 Sep 10 08:33	18° ∇ 27'11	-1°-11'-49
min. Earth dist.	1684 Aug 22 07:18	0° ∇ 37'09	28.96885 AU	min. Earth dist.	1692 Sep 09 12:41	18° ∇ 28'34	28.91161 AU
opposition	1684 Aug 23 00:52	0° ∇ 35'57	0°-42'-21	direct	1692 Nov 27 09:45	17° ∇ 04'08	
	1684 Sep 14 13:51	30° ∇					
direct	1684 Nov 09 14:04	29° \approx 12'47		conjunction	1693 Mar 09 08:52	19° ∇ 32'15	-1°-8'-41
	1685 Jan 02 01:25	0° ∇		minimum elong	1693 Mar 09 08:51	19° ∇ 32'15	1°08'43
				max. Earth dist.	1693 Mar 10 05:24	19° ∇ 34'12	30.90642 AU
conjunction	1685 Feb 19 14:20	1° ∇ 40'43	0°-41'-27	retrograde	1693 Jun 24 04:26	22° ∇ 06'23	
minimum elong	1685 Feb 19 14:20	1° ∇ 40'43	0°41'29	opposition	1693 Sep 12 21:23	20° ∇ 41'21	-1°-15'-5
max. Earth dist.	1685 Feb 20 08:19	1° ∇ 42'25	30.96480 AU	min. Earth dist.	1693 Sep 12 00:44	20° ∇ 42'47	28.90250 AU
retrograde	1685 Jun 05 19:31	4° ∇ 13'52		direct	1693 Nov 29 20:31	19° ∇ 18'15	
opposition	1685 Aug 25 13:57	2° ∇ 49'11	0°-46'-19				
min. Earth dist.	1685 Aug 24 20:21	2° ∇ 50'23	28.96171 AU	conjunction	1694 Mar 11 20:35	21° ∇ 46'21	-1°-11'-41
direct	1685 Nov 12 02:33	1° ∇ 26'04		minimum elong	1694 Mar 11 20:35	21° ∇ 46'21	1°11'41
				max. Earth dist.	1694 Mar 12 18:06	21° ∇ 48'23	30.89741 AU
conjunction	1686 Feb 22 01:12	3° ∇ 54'01	0°-45'-8	retrograde	1694 Jun 26 17:06	24° ∇ 20'33	
minimum elong	1686 Feb 22 01:12	3° ∇ 54'01	0°45'08	opposition	1694 Sep 15 10:02	22° ∇ 55'26	-1°-18'-14

min. Earth dist. direct	1694 Sep 14 13:43 1694 Dec 02 08:53	22° ✕ 56'51 21° ✕ 32'17	28.89397 AU	min. Earth dist. direct	1702 Oct 03 16:06 1702 Dec 21 03:29	10° Υ 52'14 9° Υ 27'33	28.85953 AU
conjunction	1695 Mar 14 08:22	24° ✕ 00'24	-1°-14'-34	conjunction	1703 Apr 02 10:17	11° Υ 56'06	-1°-33'-19
minimum elong	1695 Mar 14 08:21	24° ✕ 00'24	1°14'36	minimum elong	1703 Apr 02 10:16	11° Υ 56'06	1°33'20
max. Earth dist.	1695 Mar 15 06:09	24° ✕ 02'28	30.88940 AU	max. Earth dist.	1703 Apr 03 09:43	11° Υ 58'19	30.85608 AU
retrograde	1695 Jun 29 07:37	26° ✕ 34'40		retrograde	1703 Jul 18 17:27	14° Υ 31'00	
opposition	1695 Sep 17 22:37	25° ✕ 09'28	-1°-21'-15	min. Earth dist.	1703 Oct 06 05:36	13° Υ 07'14	28.85457 AU
min. Earth dist.	1695 Sep 17 00:53	25° ✕ 10'59	28.88655 AU	opposition	1703 Oct 07 02:58	13° Υ 05'45	-1°-40'-45
direct	1695 Dec 04 20:52	23° ✕ 46'17		direct	1703 Dec 23 15:28	11° Υ 42'35	
conjunction	1696 Mar 15 20:02	26° ✕ 14'25	-1°-17'-21	conjunction	1704 Apr 03 22:57	14° Υ 11'10	-1°-35'-3
minimum elong	1696 Mar 15 20:02	26° ✕ 14'25	1°17'21	minimum elong	1704 Apr 03 22:57	14° Υ 11'10	1°35'04
max. Earth dist.	1696 Mar 16 18:12	26° ✕ 16'31	30.88244 AU	max. Earth dist.	1704 Apr 04 21:54	14° Υ 13'20	30.85072 AU
retrograde	1696 Jun 30 20:20	28° ✕ 48'46		retrograde	1704 Jul 20 07:51	16° Υ 46'06	
opposition	1696 Sep 19 11:20	27° ✕ 23'31	-1°-24'-10	opposition	1704 Oct 08 15:19	15° Υ 20'48	-1°-42'-32
min. Earth dist.	1696 Sep 18 14:09	27° ✕ 24'59	28.88036 AU	min. Earth dist.	1704 Oct 07 17:16	15° Υ 22'21	28.84880 AU
direct	1696 Dec 06 08:00	26° ✕ 00'19		direct	1704 Dec 25 03:25	13° Υ 57'35	
conjunction	1697 Mar 18 08:00	28° ✕ 28'29	-1°-20'00	conjunction	1705 Apr 06 11:47	16° Υ 26'13	-1°-36'-39
minimum elong	1697 Mar 18 07:59	28° ✕ 28'29	1°20'02	minimum elong	1705 Apr 06 11:47	16° Υ 26'13	1°36'41
max. Earth dist.	1697 Mar 19 07:15	28° ✕ 30'41	30.87697 AU	max. Earth dist.	1705 Apr 07 10:27	16° Υ 28'22	30.84462 AU
	1697 Apr 30 10:37	0° Υ		retrograde	1705 Jul 22 20:54	19° Υ 01'10	
retrograde	1697 Jul 03 10:36	1° Υ 02'54		min. Earth dist.	1705 Oct 10 06:50	17° Υ 37'16	28.84267 AU
	1697 Sep 08 09:58	30° ✕ R		opposition	1705 Oct 11 03:40	17° Υ 35'49	-1°-44'-10
opposition	1697 Sep 21 23:50	29° ✕ 37'38	-1°-26'-57	direct	1705 Dec 27 14:52	16° Υ 12'33	
min. Earth dist.	1697 Sep 21 01:16	29° ✕ 39'12	28.87553 AU				
direct	1697 Dec 08 21:04	28° ✕ 14'26		conjunction	1706 Apr 09 00:43	18° Υ 41'12	-1°-38'-6
	1698 Mar 01 19:30	0° Υ		minimum elong	1706 Apr 09 00:43	18° Υ 41'12	1°38'07
conjunction	1698 Mar 20 19:55	0° Υ 42'39	-1°-22'-33	max. Earth dist.	1706 Apr 09 23:51	18° Υ 43'23	30.83859 AU
minimum elong	1698 Mar 20 19:55	0° Υ 42'38	1°22'34	retrograde	1706 Jul 25 11:43	21° Υ 16'08	
max. Earth dist.	1698 Mar 21 18:44	0° Υ 44'48	30.87268 AU	opposition	1706 Oct 13 15:45	19° Υ 50'44	-1°-45'-38
retrograde	1698 Jul 06 00:35	3° Υ 17'09		min. Earth dist.	1706 Oct 12 18:05	19° Υ 52'15	28.83677 AU
opposition	1698 Sep 24 12:29	1° Υ 51'52	-1°-29'-36	direct	1706 Dec 30 04:46	18° Υ 27'25	
min. Earth dist.	1698 Sep 23 14:29	1° Υ 53'24	28.87186 AU	conjunction	1707 Apr 11 13:33	20° Υ 56'07	-1°-39'-24
direct	1698 Dec 11 07:40	0° Υ 28'41		minimum elong	1707 Apr 11 13:33	20° Υ 56'07	1°39'26
conjunction	1699 Mar 23 08:10	2° Υ 56'57	-1°-24'-58	max. Earth dist.	1707 Apr 12 11:51	20° Υ 58'13	30.83292 AU
minimum elong	1699 Mar 23 08:09	2° Υ 56'57	1°25'00	retrograde	1707 Jul 28 01:14	23° Υ 31'03	
max. Earth dist.	1699 Mar 24 08:16	2° Υ 59'14	30.86938 AU	min. Earth dist.	1707 Oct 15 07:04	22° Υ 07'03	28.83166 AU
retrograde	1699 Jul 08 12:35	5° Υ 31'32		opposition	1707 Oct 16 03:50	22° Υ 05'36	-1°-46'-56
min. Earth dist.	1699 Sep 26 02:04	4° Υ 07'52	28.86885 AU	direct	1708 Jan 01 16:12	20° Υ 42'13	
opposition	1699 Sep 27 00:51	4° Υ 06'16	-1°-32'-7	conjunction	1708 Apr 13 02:33	23° Υ 10'58	-1°-40'-33
direct	1699 Dec 13 20:00	2° Υ 43'07		minimum elong	1708 Apr 13 02:33	23° Υ 10'58	1°40'34
conjunction	1700 Mar 25 20:22	5° Υ 11'27	-1°-27'-15	max. Earth dist.	1708 Apr 14 01:54	23° Υ 13'10	30.82834 AU
minimum elong	1700 Mar 25 20:21	5° Υ 11'27	1°27'16	retrograde	1708 Jul 29 13:30	25° Υ 45'53	
max. Earth dist.	1700 Mar 26 19:34	5° Υ 13'39	30.86662 AU	opposition	1708 Oct 17 15:48	24° Υ 20'25	-1°-48'-5
retrograde	1700 Jul 11 02:17	7° Υ 46'08		min. Earth dist.	1708 Oct 16 18:17	24° Υ 21'55	28.82767 AU
opposition	1700 Sep 29 13:28	6° Υ 20'53	-1°-34'-29	direct	1709 Jan 03 04:57	22° Υ 57'00	
min. Earth dist.	1700 Sep 28 14:56	6° Υ 22'27	28.86627 AU	conjunction	1709 Apr 15 15:22	25° Υ 25'47	-1°-41'-33
direct	1700 Dec 16 05:46	4° Υ 57'45		minimum elong	1709 Apr 15 15:22	25° Υ 25'47	1°41'34
conjunction	1701 Mar 28 08:47	7° Υ 26'10	-1°-29'-25	max. Earth dist.	1709 Apr 16 13:43	25° Υ 27'53	30.82505 AU
minimum elong	1701 Mar 28 08:47	7° Υ 26'10	1°29'26	retrograde	1709 Aug 01 03:31	28° Υ 00'42	
max. Earth dist.	1701 Mar 29 09:07	7° Υ 28'28	30.86385 AU	min. Earth dist.	1709 Oct 19 06:37	26° Υ 36'43	28.82515 AU
retrograde	1701 Jul 13 14:39	10° Υ 00'57		opposition	1709 Oct 20 03:50	26° Υ 35'13	-1°-49'-4
min. Earth dist.	1701 Oct 01 03:46	8° Υ 37'15	28.86327 AU	direct	1710 Jan 05 15:38	25° Υ 11'46	
opposition	1701 Oct 02 02:01	8° Υ 35'42	-1°-36'-43	conjunction	1710 Apr 18 04:34	27° Υ 40'37	-1°-42'-24
direct	1701 Dec 18 16:53	7° Υ 12'35		minimum elong	1710 Apr 18 04:34	27° Υ 40'37	1°42'24
conjunction	1702 Mar 30 21:26	9° Υ 41'04	-1°-31'-26	max. Earth dist.	1710 Apr 19 04:02	27° Υ 42'50	30.82313 AU
minimum elong	1702 Mar 30 21:26	9° Υ 41'04	1°31'26				
max. Earth dist.	1702 Mar 31 20:41	9° Υ 43'16	30.86052 AU	retrograde	1710 Jul 03 17:33	0° ✕	
retrograde	1702 Jul 16 04:59	12° Υ 15'55			1710 Aug 03 15:31	0° ✕ 15'32	
opposition	1702 Oct 04 14:26	10° Υ 50'41	-1°-38'-49	opposition	1710 Sep 03 21:54	30° ✕ Υ	
				min. Earth dist.	1710 Oct 22 15:37	28° Υ 50'04	-1°-49'-53
					1710 Oct 21 18:30	28° Υ 51'33	28.82387 AU

direct	1711 Jan 08 03:08	27° Υ 26'36		retrograde	1718 Aug 22 02:07	18° \mathcal{B} 16'12	
				opposition	1718 Nov 09 13:28	16° \mathcal{B} 50'50	-1°-50'-18
conjunction	1711 Apr 20 17:41	29° Υ 55'30	-1°-43'-5	min. Earth dist.	1718 Nov 08 20:09	16° \mathcal{B} 52'04	28.82276 AU
minimum elong	1711 Apr 20 17:41	29° Υ 55'30	1°43'06	direct	1719 Jan 26 00:56	15° \mathcal{B} 27'04	
max. Earth dist.	1711 Apr 21 16:12	29° \mathcal{B} 57'38	30.82259 AU				
	1711 Apr 22 17:20	0° \mathcal{B}		conjunction	1719 May 09 06:33	17° \mathcal{B} 56'30	-1°-42'-51
retrograde	1711 Aug 06 04:41	2° \mathcal{B} 30'25		minimum elong	1719 May 09 06:33	17° \mathcal{B} 56'30	1°42'52
min. Earth dist.	1711 Oct 24 06:09	1° \mathcal{B} 06'29	28.82393 AU	max. Earth dist.	1719 May 10 02:01	17° \mathcal{B} 58'20	30.82108 AU
opposition	1711 Oct 25 03:30	1° \mathcal{B} 04'59	-1°-50'-32	retrograde	1719 Aug 24 13:42	20° \mathcal{B} 31'01	
	1711 Dec 08 05:15	30° \mathcal{R} Υ		min. Earth dist.	1719 Nov 11 07:56	19° \mathcal{B} 06'51	28.82185 AU
direct	1712 Jan 10 13:46	29° Υ 41'30		opposition	1719 Nov 12 00:51	19° \mathcal{B} 05'39	-1°-49'-36
	1712 Feb 12 08:19	0° \mathcal{B}		direct	1720 Jan 28 13:24	17° \mathcal{B} 41'50	
conjunction	1712 Apr 22 06:50	2° \mathcal{B} 10'29	-1°-43'-36	conjunction	1720 May 10 20:04	20° \mathcal{B} 11'17	-1°-42'-7
minimum elong	1712 Apr 22 06:50	2° \mathcal{B} 10'29	1°43'37	minimum elong	1720 May 10 20:04	20° \mathcal{B} 11'17	1°42'07
max. Earth dist.	1712 Apr 23 05:56	2° \mathcal{B} 12'40	30.82302 AU	max. Earth dist.	1720 May 11 14:16	20° \mathcal{B} 13'00	30.82073 AU
retrograde	1712 Aug 07 16:04	4° \mathcal{B} 45'25		retrograde	1720 Aug 26 02:41	22° \mathcal{B} 45'44	
opposition	1712 Oct 26 15:26	3° \mathcal{B} 20'01	-1°-51'00	opposition	1720 Nov 13 12:11	21° \mathcal{B} 20'23	-1°-48'-44
min. Earth dist.	1712 Oct 25 18:58	3° \mathcal{B} 21'27	28.82471 AU	min. Earth dist.	1720 Nov 12 19:16	21° \mathcal{B} 21'34	28.82208 AU
direct	1713 Jan 12 00:41	1° \mathcal{B} 56'32		direct	1721 Jan 30 00:32	19° \mathcal{B} 56'29	
conjunction	1713 Apr 24 20:15	4° \mathcal{B} 25'36	-1°-43'-58	conjunction	1721 May 13 09:54	22° \mathcal{B} 26'01	-1°-41'-13
minimum elong	1713 Apr 24 20:15	4° \mathcal{B} 25'36	1°44'00	minimum elong	1721 May 13 09:54	22° \mathcal{B} 26'01	1°41'15
max. Earth dist.	1713 Apr 25 18:42	4° \mathcal{B} 27'43	30.82413 AU	max. Earth dist.	1721 May 14 04:32	22° \mathcal{B} 27'46	30.82152 AU
retrograde	1713 Aug 10 06:36	7° \mathcal{B} 00'31		retrograde	1721 Aug 28 13:38	25° \mathcal{B} 00'22	
min. Earth dist.	1713 Oct 28 06:14	5° \mathcal{B} 36'37	28.82586 AU	opposition	1721 Nov 15 23:23	23° \mathcal{B} 35'02	-1°-47'-42
opposition	1713 Oct 29 03:08	5° \mathcal{B} 35'09	-1°-51'-19	min. Earth dist.	1721 Nov 15 07:25	23° \mathcal{B} 36'10	28.82356 AU
direct	1714 Jan 14 11:30	4° \mathcal{B} 11'39		direct	1722 Feb 01 11:25	22° \mathcal{B} 11'07	
conjunction	1714 Apr 27 09:52	6° \mathcal{B} 40'49	-1°-44'-11	conjunction	1722 May 15 23:44	24° \mathcal{B} 40'43	-1°-40'-11
minimum elong	1714 Apr 27 09:51	6° \mathcal{B} 40'49	1°44'11	minimum elong	1722 May 15 23:44	24° \mathcal{B} 40'43	1°40'12
max. Earth dist.	1714 Apr 28 07:43	6° \mathcal{B} 42'52	30.82505 AU	max. Earth dist.	1722 May 16 17:29	24° \mathcal{B} 42'22	30.82385 AU
retrograde	1714 Aug 12 19:05	9° \mathcal{B} 15'43		retrograde	1722 Aug 31 03:27	27° \mathcal{B} 14'59	
opposition	1714 Oct 31 15:02	7° \mathcal{B} 50'23	-1°-51'-27	opposition	1722 Nov 18 10:31	25° \mathcal{B} 49'42	-1°-46'-30
min. Earth dist.	1714 Oct 30 19:44	7° \mathcal{B} 51'44	28.82656 AU	min. Earth dist.	1722 Nov 17 17:58	25° \mathcal{B} 50'53	28.82659 AU
direct	1715 Jan 16 22:51	6° \mathcal{B} 26'52		direct	1723 Feb 03 22:01	24° \mathcal{B} 25'44	
conjunction	1715 Apr 29 23:35	8° \mathcal{B} 56'06	-1°-44'-13	conjunction	1723 May 18 13:29	26° \mathcal{B} 55'26	-1°-38'-59
minimum elong	1715 Apr 29 23:35	8° \mathcal{B} 56'06	1°44'15	minimum elong	1723 May 18 13:29	26° \mathcal{B} 55'26	1°39'00
max. Earth dist.	1715 Apr 30 21:12	8° \mathcal{B} 58'07	30.82542 AU	max. Earth dist.	1723 May 19 06:59	26° \mathcal{B} 57'04	30.82756 AU
retrograde	1715 Aug 15 09:21	11° \mathcal{B} 30'57		retrograde	1723 Sep 02 14:31	29° \mathcal{B} 29'38	
min. Earth dist.	1715 Nov 02 07:05	10° \mathcal{B} 07'00	28.82644 AU	opposition	1723 Nov 20 21:44	28° \mathcal{B} 04'25	-1°-45'-8
opposition	1715 Nov 03 02:42	10° \mathcal{B} 05'37	-1°-51'-25	min. Earth dist.	1723 Nov 20 06:29	28° \mathcal{B} 05'30	28.83105 AU
direct	1716 Jan 19 12:27	8° \mathcal{B} 42'04		direct	1724 Feb 06 08:59	26° \mathcal{B} 40'28	
conjunction	1716 May 01 13:14	11° \mathcal{B} 11'21	-1°-44'-7	conjunction	1724 May 20 03:24	29° \mathcal{B} 10'14	-1°-37'-38
minimum elong	1716 May 01 13:14	11° \mathcal{B} 11'21	1°44'07	minimum elong	1724 May 20 03:24	29° \mathcal{B} 10'14	1°37'39
max. Earth dist.	1716 May 02 09:24	11° \mathcal{B} 13'15	30.82487 AU	max. Earth dist.	1724 May 20 20:49	29° \mathcal{B} 11'52	30.83282 AU
retrograde	1716 Aug 16 22:40	13° \mathcal{B} 46'09			1724 Jun 11 15:44	0° \mathcal{I}	
opposition	1716 Nov 04 14:30	12° \mathcal{B} 20'49	-1°-51'-12	retrograde	1724 Sep 04 04:04	1° \mathcal{I} 44'23	
min. Earth dist.	1716 Nov 03 20:23	12° \mathcal{B} 22'06	28.82557 AU	opposition	1724 Nov 22 08:45	0° \mathcal{I} 19'15	-1°-43'-36
direct	1717 Jan 20 23:56	10° \mathcal{B} 57'12		min. Earth dist.	1724 Nov 21 17:02	0° \mathcal{I} 20'22	28.83677 AU
					1724 Dec 03 19:08	30° \mathcal{R} \mathcal{B}	
conjunction	1717 May 04 03:01	13° \mathcal{B} 26'32	-1°-43'-51	direct	1725 Feb 07 21:41	28° \mathcal{B} 55'17	
minimum elong	1717 May 04 03:01	13° \mathcal{B} 26'32	1°43'52		1725 Apr 12 12:19	0° \mathcal{I}	
max. Earth dist.	1717 May 04 23:30	13° \mathcal{B} 28'27	30.82373 AU				
	1717 Jun 17 13:26	15° \mathcal{B}		conjunction	1725 May 22 17:19	1° \mathcal{I} 25'11	-1°-36'-8
retrograde	1717 Aug 19 11:52	16° \mathcal{B} 01'15		minimum elong	1725 May 22 17:20	1° \mathcal{I} 25'11	1°36'09
	1717 Oct 23 15:38	15° \mathcal{R} \mathcal{B}		max. Earth dist.	1725 May 23 09:34	1° \mathcal{I} 26'42	30.83898 AU
min. Earth dist.	1717 Nov 06 07:52	14° \mathcal{B} 37'11	28.82411 AU	retrograde	1725 Sep 06 17:04	3° \mathcal{I} 59'16	
opposition	1717 Nov 07 02:04	14° \mathcal{B} 35'54	-1°-50'-50	opposition	1725 Nov 24 19:56	2° \mathcal{I} 34'13	-1°-41'-55
direct	1718 Jan 23 13:20	13° \mathcal{B} 12'12		min. Earth dist.	1725 Nov 24 05:46	2° \mathcal{I} 35'13	28.84321 AU
	1718 Apr 18 00:32	15° \mathcal{B}		direct	1726 Feb 10 08:21	1° \mathcal{I} 10'15	
conjunction	1718 May 06 16:44	15° \mathcal{B} 41'35	-1°-43'-25	conjunction	1726 May 25 07:34	3° \mathcal{I} 40'16	-1°-34'-29
minimum elong	1718 May 06 16:44	15° \mathcal{B} 41'35	1°43'26	minimum elong	1726 May 25 07:35	3° \mathcal{I} 40'16	1°34'29
max. Earth dist.	1718 May 07 11:29	15° \mathcal{B} 43'21	30.82226 AU	max. Earth dist.	1726 May 25 23:51	3° \mathcal{I} 41'47	30.84552 AU

retrograde	1726 Sep 09 06:40	6°II14'15		direct	1735 Mar 02 19:35	21°II22'46	
opposition	1726 Nov 27 06:51	4°II49'18	-1°-40'-4				
min. Earth dist.	1726 Nov 26 16:53	4°II50'18	28.84954 AU	conjunction	1735 Jun 15 15:05	23°II53'15	-1°-13'-37
direct	1727 Feb 12 21:24	3°II25'20		minimum elong	1735 Jun 15 15:05	23°II53'15	1°13'38
				max. Earth dist.	1735 Jun 15 23:41	23°II54'03	30.88999 AU
conjunction	1727 May 27 21:43	5°II55'27	-1°-32'-41	retrograde	1735 Sep 29 20:46	26°II25'55	
minimum elong	1727 May 27 21:43	5°II55'27	1°32'42	opposition	1735 Dec 17 08:14	25°II01'20	-1°-17'-9
max. Earth dist.	1727 May 28 11:56	5°II56'47	30.85166 AU	min. Earth dist.	1735 Dec 17 00:50	25°II01'51	28.89445 AU
retrograde	1727 Sep 11 21:36	8°II29'21		direct	1736 Mar 04 08:50	23°II36'50	
opposition	1727 Nov 29 18:02	7°II04'28	-1°-38'-4				
min. Earth dist.	1727 Nov 29 05:13	7°II05'22	28.85539 AU	conjunction	1736 Jun 17 04:57	26°II07'23	-1°-10'-41
direct	1728 Feb 15 09:34	5°II40'28		minimum elong	1736 Jun 17 04:57	26°II07'23	1°10'42
				max. Earth dist.	1736 Jun 17 11:53	26°II08'02	30.89825 AU
conjunction	1728 May 29 11:57	8°II10'40	-1°-30'-45	retrograde	1736 Oct 01 10:14	28°II39'56	
minimum elong	1728 May 29 11:57	8°II10'40	1°30'46	opposition	1736 Dec 18 18:51	27°II15'25	-1°-13'-58
max. Earth dist.	1728 May 30 02:17	8°II12'00	30.85706 AU	min. Earth dist.	1736 Dec 18 12:20	27°II15'53	28.90330 AU
retrograde	1728 Sep 13 09:14	10°II44'27		direct	1737 Mar 06 20:32	25°II50'55	
opposition	1728 Dec 01 05:08	9°II19'37	-1°-35'-56				
min. Earth dist.	1728 Nov 30 17:16	9°II20'28	28.86021 AU	conjunction	1737 Jun 19 19:13	28°II21'34	-1°-7'-39
direct	1729 Feb 16 22:40	7°II55'35		minimum elong	1737 Jun 19 19:13	28°II21'34	1°07'40
				max. Earth dist.	1737 Jun 20 02:30	28°II22'15	30.90761 AU
conjunction	1729 Jun 01 02:12	10°II25'49	-1°-28'-41		1737 Aug 06 12:31	0°☿	
minimum elong	1729 Jun 01 02:13	10°II25'49	1°28'42	retrograde	1737 Oct 03 21:50	0°☿53'58	
max. Earth dist.	1729 Jun 01 14:27	10°II26'58	30.86160 AU		1737 Dec 02 21:54	30°♄II	
retrograde	1729 Sep 15 22:57	12°II59'28		opposition	1737 Dec 21 05:17	29°II29'35	-1°-10'-40
opposition	1729 Dec 03 16:02	11°II34'40	-1°-33'-39	min. Earth dist.	1737 Dec 20 23:38	29°II29'59	28.91287 AU
min. Earth dist.	1729 Dec 03 04:48	11°II35'28	28.86434 AU	direct	1738 Mar 09 09:09	28°II05'05	
direct	1730 Feb 19 10:26	10°II10'34			1738 Jun 06 05:00	0°☿	
conjunction	1730 Jun 03 16:35	12°II40'51	-1°-26'-29	conjunction	1738 Jun 22 09:21	0°☿35'50	-1°-4'-31
minimum elong	1730 Jun 03 16:35	12°II40'51	1°26'30	minimum elong	1738 Jun 22 09:22	0°☿35'50	1°04'32
max. Earth dist.	1730 Jun 04 04:41	12°II41'59	30.86540 AU	max. Earth dist.	1738 Jun 22 14:40	0°☿36'20	30.91748 AU
retrograde	1730 Sep 18 10:24	15°II14'20		retrograde	1738 Oct 06 11:56	3°☿08'07	
opposition	1730 Dec 06 03:00	13°II49'33	-1°-31'-13	opposition	1738 Dec 23 15:50	1°☿43'50	-1°-7'-15
min. Earth dist.	1730 Dec 05 17:15	13°II50'15	28.86791 AU	min. Earth dist.	1738 Dec 23 10:44	1°☿44'12	28.92275 AU
direct	1731 Feb 21 22:13	12°II25'23		direct	1739 Mar 11 20:48	0°☿19'21	
conjunction	1731 Jun 06 06:38	14°II55'42	-1°-24'-9	conjunction	1739 Jun 24 23:32	2°☿50'12	-1°-1'-17
minimum elong	1731 Jun 06 06:38	14°II55'42	1°24'10	minimum elong	1739 Jun 24 23:32	2°☿50'12	1°01'18
max. Earth dist.	1731 Jun 06 17:17	14°II56'41	30.86904 AU	max. Earth dist.	1739 Jun 25 04:46	2°☿50'41	30.92710 AU
retrograde	1731 Sep 20 23:12	17°II29'00		retrograde	1739 Oct 08 23:45	5°☿22'21	
opposition	1731 Dec 08 13:44	16°II04'15	-1°-28'-40	opposition	1739 Dec 26 02:29	3°☿58'11	-1°-3'-45
min. Earth dist.	1731 Dec 08 03:48	16°II04'57	28.87156 AU	min. Earth dist.	1739 Dec 25 23:02	3°☿58'25	28.93202 AU
direct	1732 Feb 24 09:46	14°II39'59		direct	1740 Mar 13 08:40	2°☿33'42	
conjunction	1732 Jun 07 20:47	17°II10'20	-1°-21'-41	conjunction	1740 Jun 26 13:45	5°☿04'37	0°-57'-58
minimum elong	1732 Jun 07 20:47	17°II10'20	1°21'43	minimum elong	1740 Jun 26 13:45	5°☿04'37	0°57'59
max. Earth dist.	1732 Jun 08 06:53	17°II11'16	30.87285 AU	max. Earth dist.	1740 Jun 26 17:01	5°☿04'55	30.93605 AU
retrograde	1732 Sep 22 08:56	19°II43'29		retrograde	1740 Oct 10 12:44	7°☿36'38	
opposition	1732 Dec 10 00:29	18°II18'45	-1°-25'-58	opposition	1740 Dec 27 12:54	6°☿12'33	-1°00'-9
min. Earth dist.	1732 Dec 09 16:12	18°II19'20	28.87570 AU	min. Earth dist.	1740 Dec 27 09:38	6°☿12'47	28.94041 AU
direct	1733 Feb 25 20:56	16°II54'25		direct	1741 Mar 15 20:25	4°☿48'02	
conjunction	1733 Jun 10 10:55	19°II24'47	-1°-19'-7	conjunction	1741 Jun 29 04:04	7°☿19'02	0°-54'-33
minimum elong	1733 Jun 10 10:55	19°II24'47	1°19'08	minimum elong	1741 Jun 29 04:05	7°☿19'02	0°54'34
max. Earth dist.	1733 Jun 10 20:29	19°II25'40	30.87750 AU	max. Earth dist.	1741 Jun 29 06:22	7°☿19'14	30.94383 AU
retrograde	1733 Sep 24 21:13	21°II57'45		retrograde	1741 Oct 12 22:44	9°☿50'53	
opposition	1733 Dec 12 11:03	20°II33'03	-1°-23'-9	opposition	1741 Dec 29 23:32	8°☿26'53	0°-56'-28
min. Earth dist.	1733 Dec 12 02:26	20°II33'40	28.88071 AU	min. Earth dist.	1741 Dec 29 22:19	8°☿26'58	28.94763 AU
direct	1734 Feb 28 09:18	19°II08'39		direct	1742 Mar 18 07:37	7°☿02'19	
conjunction	1734 Jun 13 00:58	21°II39'04	-1°-16'-25	conjunction	1742 Jul 01 18:16	9°☿33'21	0°-51'-4
minimum elong	1734 Jun 13 00:58	21°II39'04	1°16'26	minimum elong	1742 Jul 01 18:16	9°☿33'21	0°51'05
max. Earth dist.	1734 Jun 13 09:23	21°II39'51	30.88303 AU	max. Earth dist.	1742 Jul 01 19:21	9°☿33'27	30.95065 AU
retrograde	1734 Sep 27 08:36	24°II11'53		retrograde	1742 Oct 15 10:51	12°☿05'02	
opposition	1734 Dec 14 21:42	22°II47'14	-1°-20'-13	opposition	1743 Jan 01 09:52	10°☿41'05	0°-52'-42
min. Earth dist.	1734 Dec 14 14:29	22°II47'45	28.88692 AU	min. Earth dist.	1743 Jan 01 08:44	10°☿41'10	28.95392 AU

direct	1743 Mar 20 19:40	9° Ω 16'28		minimum elong	1751 Jul 22 22:07	29° Ω 35'27	0°17'07
				max. Earth dist.	1751 Jul 22 15:55	29° Ω 34'53	31.02450 AU
conjunction	1743 Jul 04 08:19	11° Ω 47'32	0°-47'-31		1751 Aug 02 23:50	0° Ω	
minimum elong	1743 Jul 04 08:19	11° Ω 47'32	0°47'31	retrograde	1751 Nov 04 18:06	2° Ω 05'35	
max. Earth dist.	1743 Jul 04 07:58	11° Ω 47'31	30.95666 AU	opposition	1752 Jan 21 05:50	0° Ω 42'13	0°-16'-9
retrograde	1743 Oct 17 21:17	14° Ω 19'03		min. Earth dist.	1752 Jan 21 11:07	0° Ω 41'50	29.03010 AU
opposition	1744 Jan 03 20:19	12° Ω 55'08	0°-48'-51		1752 Feb 16 07:52	30° Ω	
min. Earth dist.	1744 Jan 03 20:56	12° Ω 55'05	28.95980 AU	direct	1752 Apr 09 07:31	29° Ω 17'16	
direct	1744 Mar 22 05:37	11° Ω 30'26			1752 May 31 03:17	0° Ω	
conjunction	1744 Jul 05 22:18	14° Ω 01'33	0°-43'-53	conjunction	1752 Jul 24 11:42	1° Ω 48'43	0°-13'-8
minimum elong	1744 Jul 05 22:18	14° Ω 01'33	0°43'54	minimum elong	1752 Jul 24 11:42	1° Ω 48'43	0°13'09
max. Earth dist.	1744 Jul 05 21:43	14° Ω 01'29	30.96252 AU	behind sun begin	1752 Jul 24 07:56	1° Ω 48'23	
retrograde	1744 Oct 19 08:06	16° Ω 32'52		behind sun end	1752 Jul 24 15:28	1° Ω 49'03	
opposition	1745 Jan 05 06:35	15° Ω 08'59	0°-44'-57	max. Earth dist.	1752 Jul 24 04:10	1° Ω 48'02	31.03546 AU
min. Earth dist.	1745 Jan 05 07:26	15° Ω 08'55	28.96554 AU	retrograde	1752 Nov 06 04:02	4° Ω 18'43	
direct	1745 Mar 24 19:23	13° Ω 44'13		opposition	1753 Jan 22 16:10	2° Ω 55'25	0°-11'-54
conjunction	1745 Jul 08 12:11	16° Ω 15'21	0°-40'-12	min. Earth dist.	1753 Jan 22 23:15	2° Ω 54'55	29.04072 AU
minimum elong	1745 Jul 08 12:12	16° Ω 15'21	0°40'13	direct	1753 Apr 11 17:28	1° Ω 30'27	
max. Earth dist.	1745 Jul 08 09:42	16° Ω 15'07	30.96843 AU	conjunction	1753 Jul 27 01:25	4° Ω 01'56	0°-9'-10
retrograde	1745 Oct 21 20:06	18° Ω 46'29		minimum elong	1753 Jul 27 01:24	4° Ω 01'56	0°09'10
opposition	1746 Jan 07 16:46	17° Ω 22'38	0°-40'-59	behind sun begin	1753 Jul 26 19:52	4° Ω 01'27	
min. Earth dist.	1746 Jan 07 18:37	17° Ω 22'30	28.97178 AU	behind sun end	1753 Jul 27 06:57	4° Ω 02'26	
direct	1746 Mar 27 07:09	15° Ω 57'47		max. Earth dist.	1753 Jul 26 17:21	4° Ω 01'13	31.04557 AU
conjunction	1746 Jul 11 02:07	18° Ω 28'58	0°-36'-28	retrograde	1753 Nov 08 14:08	6° Ω 31'47	
minimum elong	1746 Jul 11 02:07	18° Ω 28'58	0°36'29	opposition	1754 Jan 25 02:21	5° Ω 08'34	0°-7'-37
max. Earth dist.	1746 Jul 10 23:59	18° Ω 28'46	30.97503 AU	min. Earth dist.	1754 Jan 25 09:52	5° Ω 08'02	29.05020 AU
retrograde	1746 Oct 24 06:43	20° Ω 59'54		direct	1754 Apr 14 06:40	3° Ω 43'34	
opposition	1747 Jan 10 03:02	19° Ω 36'06	0°-36'-58	conjunction	1754 Jul 29 14:55	6° Ω 15'05	0°-5'-11
min. Earth dist.	1747 Jan 10 05:33	19° Ω 35'55	28.97879 AU	minimum elong	1754 Jul 29 14:55	6° Ω 15'05	0°05'13
direct	1747 Mar 29 19:41	18° Ω 11'12		behind sun begin	1754 Jul 29 08:32	6° Ω 14'31	
conjunction	1747 Jul 13 15:35	20° Ω 42'23	0°-32'-41	behind sun end	1754 Jul 29 21:19	6° Ω 15'39	
minimum elong	1747 Jul 13 15:35	20° Ω 42'23	0°32'42	max. Earth dist.	1754 Jul 29 04:47	6° Ω 14'09	31.05454 AU
max. Earth dist.	1747 Jul 13 11:46	20° Ω 42'02	30.98268 AU	retrograde	1754 Nov 11 01:30	8° Ω 44'46	
retrograde	1747 Oct 26 20:01	23° Ω 13'09		opposition	1755 Jan 27 12:40	7° Ω 21'35	0°-3'-21
opposition	1748 Jan 12 13:14	21° Ω 49'24	0°-32'-53	min. Earth dist.	1755 Jan 27 21:17	7° Ω 20'59	29.05878 AU
min. Earth dist.	1748 Jan 12 15:51	21° Ω 49'13	28.98712 AU	direct	1755 Apr 16 17:32	5° Ω 56'33	
direct	1748 Mar 31 08:04	20° Ω 24'28		conjunction	1755 Aug 01 04:19	8° Ω 28'04	0°-1'-9
conjunction	1748 Jul 15 05:20	22° Ω 55'42	0°-28'-51	minimum elong	1755 Aug 01 04:18	8° Ω 28'04	0°01'10
minimum elong	1748 Jul 15 05:20	22° Ω 55'42	0°28'52	behind sun begin	1755 Jul 31 21:42	8° Ω 27'29	
max. Earth dist.	1748 Jul 15 01:55	22° Ω 55'23	30.99164 AU	behind sun end	1755 Aug 01 10:53	8° Ω 28'39	
retrograde	1748 Oct 28 07:03	25° Ω 26'18		max. Earth dist.	1755 Jul 31 18:13	8° Ω 27'09	31.06263 AU
opposition	1749 Jan 13 23:23	24° Ω 02'36	0°-28'-46	asc. node	1755 Nov 12 20:50	10° Ω 57'34	
min. Earth dist.	1749 Jan 14 03:16	24° Ω 02'20	28.99671 AU	retrograde	1755 Nov 13 11:33	10° Ω 57'35	
direct	1749 Apr 02 20:42	22° Ω 37'39		opposition	1756 Jan 29 22:54	9° Ω 34'27	0°00'54
conjunction	1749 Jul 17 18:57	25° Ω 08'56	0°-24'-58	min. Earth dist.	1756 Jan 30 08:33	9° Ω 33'46	29.06642 AU
minimum elong	1749 Jul 17 18:57	25° Ω 08'56	0°24'59	direct	1756 Apr 18 05:59	8° Ω 09'22	
max. Earth dist.	1749 Jul 17 14:03	25° Ω 08'29	31.00196 AU	conjunction	1756 Aug 02 17:34	10° Ω 40'53	0°02'56
retrograde	1749 Oct 30 19:26	27° Ω 39'23		minimum elong	1756 Aug 02 17:34	10° Ω 40'53	0°02'56
opposition	1750 Jan 16 09:30	26° Ω 15'47	0°-24'-35	behind sun begin	1756 Aug 02 11:00	10° Ω 40'18	
min. Earth dist.	1750 Jan 16 13:04	26° Ω 15'32	29.00748 AU	behind sun end	1756 Aug 03 00:08	10° Ω 41'28	
direct	1750 Apr 05 08:58	24° Ω 50'50		max. Earth dist.	1756 Aug 02 05:26	10° Ω 39'47	31.07006 AU
conjunction	1750 Jul 20 08:32	27° Ω 22'11	0°-21'-3	retrograde	1756 Nov 14 23:58	13° Ω 10'13	
minimum elong	1750 Jul 20 08:32	27° Ω 22'11	0°21'04	opposition	1757 Jan 31 08:54	11° Ω 47'08	0°05'10
max. Earth dist.	1750 Jul 20 03:20	27° Ω 21'42	31.01303 AU	min. Earth dist.	1757 Jan 31 18:58	11° Ω 46'25	29.07370 AU
retrograde	1750 Nov 02 05:44	29° Ω 52'28		direct	1757 Apr 20 18:32	10° Ω 21'59	
opposition	1751 Jan 18 19:44	28° Ω 28'59	0°-20'-23	conjunction	1757 Aug 05 06:55	12° Ω 53'31	0°06'55
min. Earth dist.	1751 Jan 19 01:01	28° Ω 28'37	29.01881 AU	minimum elong	1757 Aug 05 06:54	12° Ω 53'31	0°06'55
direct	1751 Apr 07 19:43	27° Ω 04'03		behind sun begin	1757 Aug 05 00:48	12° Ω 52'59	
conjunction	1751 Jul 22 22:07	29° Ω 35'26	0°-17'-6	behind sun end	1757 Aug 05 13:01	12° Ω 54'04	
				max. Earth dist.	1757 Aug 04 19:01	12° Ω 52'26	31.07718 AU
					1757 Oct 11 15:57	15° Ω	

retrograde	1757 Nov 17 10:12	15°022'41		opposition	1765 Feb 17 18:10	29°025'02	0°38'25
	1757 Dec 24 17:16	15°00		min. Earth dist.	1765 Feb 18 09:00	29°024'00	29.15333 AU
opposition	1758 Feb 02 19:07	13°059'37	0°09'26	direct	1765 May 08 14:46	27°059'56	
min. Earth dist.	1758 Feb 03 06:38	13°058'48	29.08085 AU		1765 Aug 09 05:31	0°00	
direct	1758 Apr 23 07:33	12°034'26					
	1758 Aug 05 03:25	15°00		conjunction	1765 Aug 23 13:03	0°031'38	0°37'51
				minimum elong	1765 Aug 23 13:02	0°031'38	0°37'52
conjunction	1758 Aug 07 19:48	15°005'58	0°10'52	max. Earth dist.	1765 Aug 22 19:26	0°030'00	31.15850 AU
minimum elong	1758 Aug 07 19:48	15°005'58	0°10'52	retrograde	1765 Dec 04 23:18	2°059'49	
behind sun begin	1758 Aug 07 14:52	15°005'32		opposition	1766 Feb 20 04:30	1°037'22	0°42'23
behind sun end	1758 Aug 08 00:45	15°006'24		min. Earth dist.	1766 Feb 20 19:37	1°036'19	29.16389 AU
max. Earth dist.	1758 Aug 07 06:28	15°004'44	31.08453 AU	direct	1766 May 11 03:10	0°012'16	
retrograde	1758 Nov 19 21:58	17°034'57		max. Earth dist.	1766 Aug 25 08:15	2°042'23	31.16833 AU
opposition	1759 Feb 05 05:10	16°011'56	0°13'40				
min. Earth dist.	1759 Feb 05 16:13	16°011'09	29.08852 AU	conjunction	1766 Aug 26 01:36	2°043'59	0°41'32
	1759 Mar 28 00:50	15°00		minimum elong	1766 Aug 26 01:36	2°043'59	0°41'31
direct	1759 Apr 25 20:18	14°046'43		retrograde	1766 Dec 07 09:09	5°012'02	
	1759 May 24 07:19	15°00		opposition	1767 Feb 22 15:02	3°049'38	0°46'16
				min. Earth dist.	1767 Feb 23 07:41	3°048'29	29.17314 AU
conjunction	1759 Aug 10 08:46	17°018'15	0°14'49	direct	1767 May 13 15:55	2°024'33	
minimum elong	1759 Aug 10 08:46	17°018'15	0°14'49				
behind sun begin	1759 Aug 10 06:24	17°018'02		conjunction	1767 Aug 28 14:01	4°056'14	0°45'09
behind sun end	1759 Aug 10 11:07	17°018'27		minimum elong	1767 Aug 28 14:01	4°056'14	0°45'09
max. Earth dist.	1759 Aug 09 19:24	17°017'01	31.09252 AU	max. Earth dist.	1767 Aug 27 19:01	4°054'29	31.17700 AU
retrograde	1759 Nov 22 07:54	19°047'05		retrograde	1767 Dec 09 20:58	7°024'10	
opposition	1760 Feb 07 15:18	18°024'07	0°17'53	opposition	1768 Feb 25 01:15	6°001'48	0°50'06
min. Earth dist.	1760 Feb 08 03:45	18°023'14	29.09713 AU	min. Earth dist.	1768 Feb 25 17:40	6°000'39	29.18124 AU
direct	1760 Apr 27 07:29	16°058'53		direct	1768 May 15 04:36	4°036'40	
				max. Earth dist.	1768 Aug 29 07:12	7°006'34	31.18443 AU
conjunction	1760 Aug 11 21:34	19°030'25	0°18'44				
minimum elong	1760 Aug 11 21:34	19°030'25	0°18'44	conjunction	1768 Aug 30 02:30	7°008'21	0°48'41
max. Earth dist.	1760 Aug 11 07:35	19°029'08	31.10176 AU	minimum elong	1768 Aug 30 02:29	7°008'21	0°48'41
retrograde	1760 Nov 23 19:45	21°059'07		retrograde	1768 Dec 11 07:21	9°036'08	
opposition	1761 Feb 09 01:22	20°036'13	0°22'04	opposition	1769 Feb 26 11:45	8°013'47	0°53'50
min. Earth dist.	1761 Feb 09 13:17	20°035'22	29.10690 AU	min. Earth dist.	1769 Feb 27 05:50	8°012'32	29.18824 AU
direct	1761 Apr 29 19:38	19°010'58		direct	1769 May 17 17:00	6°048'38	
conjunction	1761 Aug 14 10:23	21°042'33	0°22'38	conjunction	1769 Sep 01 14:44	9°020'16	0°52'09
minimum elong	1761 Aug 14 10:22	21°042'33	0°22'39	minimum elong	1769 Sep 01 14:44	9°020'16	0°52'10
max. Earth dist.	1761 Aug 13 19:44	21°041'12	31.11210 AU	max. Earth dist.	1769 Aug 31 18:37	9°018'24	31.19104 AU
retrograde	1761 Nov 26 04:57	24°011'07		retrograde	1769 Dec 13 18:43	11°047'54	
opposition	1762 Feb 11 11:32	22°048'19	0°26'13	opposition	1770 Feb 28 22:04	10°025'34	0°57'30
min. Earth dist.	1762 Feb 12 00:37	22°047'24	29.11793 AU	min. Earth dist.	1770 Mar 01 15:50	10°024'20	29.19450 AU
direct	1762 May 02 05:25	21°023'06		direct	1770 May 20 06:41	9°000'23	
				max. Earth dist.	1770 Sep 03 06:05	11°030'02	31.19708 AU
conjunction	1762 Aug 16 23:09	23°054'43	0°26'30				
minimum elong	1762 Aug 16 23:09	23°054'43	0°26'30	conjunction	1770 Sep 04 02:52	11°031'57	0°55'33
max. Earth dist.	1762 Aug 16 08:41	23°053'22	31.12364 AU	minimum elong	1770 Sep 04 02:51	11°031'57	0°55'32
retrograde	1762 Nov 28 14:27	26°023'10		retrograde	1770 Dec 16 03:40	13°059'27	
opposition	1763 Feb 13 21:43	25°000'28	0°30'20	opposition	1771 Mar 03 08:32	12°037'08	1°01'05
min. Earth dist.	1763 Feb 14 10:46	24°059'33	29.12974 AU	min. Earth dist.	1771 Mar 04 03:25	12°035'49	29.20067 AU
direct	1763 May 04 17:43	23°035'18		direct	1771 May 22 17:28	11°011'54	
conjunction	1763 Aug 19 11:38	26°006'57	0°30'20	conjunction	1771 Sep 06 14:44	13°043'25	0°58'51
minimum elong	1763 Aug 19 11:38	26°006'57	0°30'21	minimum elong	1771 Sep 06 14:44	13°043'25	0°58'52
max. Earth dist.	1763 Aug 18 19:44	26°005'29	31.13564 AU	max. Earth dist.	1771 Sep 05 18:20	13°041'32	31.20328 AU
retrograde	1763 Dec 01 01:28	28°035'20		retrograde	1771 Dec 18 12:30	16°010'47	
opposition	1764 Feb 16 07:56	27°012'43	0°34'24	opposition	1772 Mar 04 18:56	14°048'28	1°04'34
min. Earth dist.	1764 Feb 16 21:45	27°011'45	29.14185 AU	min. Earth dist.	1772 Mar 05 13:38	14°047'10	29.20702 AU
direct	1764 May 06 03:13	25°047'35		direct	1772 May 24 06:17	13°023'13	
max. Earth dist.	1764 Aug 20 08:48	28°017'50	31.14748 AU	max. Earth dist.	1772 Sep 07 05:02	15°052'42	31.20992 AU
conjunction	1764 Aug 21 00:26	28°019'16	0°34'07	conjunction	1772 Sep 08 02:34	15°054'42	1°02'04
minimum elong	1764 Aug 21 00:26	28°019'16	0°34'07	minimum elong	1772 Sep 08 02:33	15°054'42	1°02'03
	1764 Oct 09 12:57	0°00		retrograde	1772 Dec 19 22:44	18°021'57	
retrograde	1764 Dec 02 11:11	0°047'33		opposition	1773 Mar 07 05:16	16°059'39	1°07'58
	1765 Jan 27 05:34	30°00		min. Earth dist.	1773 Mar 08 00:10	16°058'20	29.21422 AU

direct	1773 May 26 16:03	15° \mathring{M} 34'24		direct	1781 Jun 13 16:36	3° \mathring{A} 05'03	
				max. Earth dist.	1781 Sep 27 09:55	5° \mathring{A} 34'08	31.27419 AU
conjunction	1773 Sep 10 14:26	18° \mathring{M} 05'51	1°05'12	conjunction	1781 Sep 28 10:11	5° \mathring{A} 36'24	1°26'26
minimum elong	1773 Sep 10 14:25	18° \mathring{M} 05'51	1°05'12	minimum elong	1781 Sep 28 10:10	5° \mathring{A} 36'24	1°26'26
max. Earth dist.	1773 Sep 09 17:48	18° \mathring{M} 03'56	31.21753 AU	retrograde	1782 Jan 08 19:23	8° \mathring{A} 03'09	
retrograde	1773 Dec 22 07:29	20° \mathring{M} 33'00		opposition	1782 Mar 27 05:37	6° \mathring{A} 41'16	1°33'27
opposition	1774 Mar 09 15:50	19° \mathring{M} 10'46	1°11'15	min. Earth dist.	1782 Mar 28 03:26	6° \mathring{A} 39'45	29.27651 AU
min. Earth dist.	1774 Mar 10 11:07	19° \mathring{M} 09'26	29.22229 AU	direct	1782 Jun 16 02:42	5° \mathring{A} 16'16	
direct	1774 May 29 03:51	17° \mathring{M} 45'32					
max. Earth dist.	1774 Sep 12 04:06	20° \mathring{M} 14'57	31.22610 AU	conjunction	1782 Sep 30 21:10	7° \mathring{A} 47'33	1°28'33
conjunction	1774 Sep 13 01:53	20° \mathring{M} 16'58	1°08'14	minimum elong	1782 Sep 30 21:10	7° \mathring{A} 47'32	1°28'33
minimum elong	1774 Sep 13 01:53	20° \mathring{M} 16'58	1°08'13	max. Earth dist.	1782 Sep 29 21:50	7° \mathring{A} 45'22	31.27669 AU
retrograde	1774 Dec 24 18:45	22° \mathring{M} 44'04		retrograde	1783 Jan 11 03:19	10° \mathring{A} 14'14	
opposition	1775 Mar 12 02:18	21° \mathring{M} 21'53	1°14'26	opposition	1783 Mar 29 16:33	8° \mathring{A} 52'20	1°35'39
min. Earth dist.	1775 Mar 12 21:08	21° \mathring{M} 20'35	29.23129 AU	min. Earth dist.	1783 Mar 30 14:53	8° \mathring{A} 50'47	29.27870 AU
direct	1775 May 31 15:04	19° \mathring{M} 56'42		direct	1783 Jun 18 15:13	7° \mathring{A} 27'19	
conjunction	1775 Sep 15 13:35	22° \mathring{M} 28'09	1°11'10	max. Earth dist.	1783 Oct 02 07:34	9° \mathring{A} 56'14	31.27879 AU
minimum elong	1775 Sep 15 13:35	22° \mathring{M} 28'09	1°11'10	conjunction	1783 Oct 03 07:59	9° \mathring{A} 58'30	1°30'33
max. Earth dist.	1775 Sep 14 16:42	22° \mathring{M} 26'13	31.23524 AU	minimum elong	1783 Oct 03 07:59	9° \mathring{A} 58'30	1°30'34
retrograde	1775 Dec 27 04:18	24° \mathring{M} 55'12		retrograde	1784 Jan 13 13:26	12° \mathring{A} 25'08	
opposition	1776 Mar 13 12:49	23° \mathring{M} 33'06	1°17'31	opposition	1784 Mar 31 03:16	11° \mathring{A} 03'12	1°37'43
min. Earth dist.	1776 Mar 14 08:51	23° \mathring{M} 31'42	29.24054 AU	min. Earth dist.	1784 Apr 01 00:59	11° \mathring{A} 01'42	29.28090 AU
direct	1776 Jun 02 02:33	22° \mathring{M} 07'58		direct	1784 Jun 20 02:10	9° \mathring{A} 38'10	
max. Earth dist.	1776 Sep 16 03:07	24° \mathring{M} 37'23	31.24442 AU	conjunction	1784 Oct 04 18:53	12° \mathring{A} 09'17	1°32'25
conjunction	1776 Sep 17 01:08	24° \mathring{M} 39'25	1°13'59	minimum elong	1784 Oct 04 18:53	12° \mathring{A} 09'17	1°32'24
minimum elong	1776 Sep 17 01:08	24° \mathring{M} 39'25	1°13'59	max. Earth dist.	1784 Oct 03 19:39	12° \mathring{A} 07'07	31.28103 AU
retrograde	1776 Dec 28 16:13	27° \mathring{M} 06'26		retrograde	1785 Jan 14 22:11	14° \mathring{A} 35'51	
opposition	1777 Mar 15 23:25	25° \mathring{M} 44'24	1°20'29	opposition	1785 Apr 02 14:20	13° \mathring{A} 13'54	1°39'39
min. Earth dist.	1777 Mar 16 18:50	25° \mathring{M} 43'04	29.24946 AU	min. Earth dist.	1785 Apr 03 12:46	13° \mathring{A} 12'21	29.28349 AU
direct	1777 Jun 04 14:41	24° \mathring{M} 19'20		direct	1785 Jun 22 13:05	11° \mathring{A} 48'52	
conjunction	1777 Sep 19 12:43	26° \mathring{M} 50'48	1°16'43	max. Earth dist.	1785 Oct 06 05:46	14° \mathring{A} 17'42	31.28406 AU
minimum elong	1777 Sep 19 12:43	26° \mathring{M} 50'48	1°16'43	conjunction	1785 Oct 07 05:24	14° \mathring{A} 19'54	1°34'09
max. Earth dist.	1777 Sep 18 14:48	26° \mathring{M} 48'46	31.25279 AU	minimum elong	1785 Oct 07 05:24	14° \mathring{A} 19'54	1°34'10
retrograde	1777 Dec 31 02:55	29° \mathring{M} 17'47		retrograde	1786 Jan 17 09:17	16° \mathring{A} 46'27	
opposition	1778 Mar 18 10:15	27° \mathring{M} 55'48	1°23'20	opposition	1786 Apr 05 01:17	15° \mathring{A} 24'29	1°41'26
min. Earth dist.	1778 Mar 19 07:06	27° \mathring{M} 54'22	29.25746 AU	min. Earth dist.	1786 Apr 05 22:20	15° \mathring{A} 23'02	29.28702 AU
direct	1778 Jun 07 02:52	26° \mathring{M} 30'47		direct	1786 Jun 25 01:05	13° \mathring{A} 59'28	
max. Earth dist.	1778 Sep 21 01:40	29° \mathring{M} 00'08	31.26021 AU	conjunction	1786 Oct 09 16:03	16° \mathring{A} 30'27	1°35'45
conjunction	1778 Sep 22 00:12	29° \mathring{M} 02'14	1°19'19	minimum elong	1786 Oct 09 16:03	16° \mathring{A} 30'27	1°35'45
minimum elong	1778 Sep 22 00:12	29° \mathring{M} 02'14	1°19'19	max. Earth dist.	1786 Oct 08 17:10	16° \mathring{A} 28'20	31.28806 AU
retrograde	1778 Oct 18 13:18	0° \mathring{A}		retrograde	1787 Jan 19 19:52	18° \mathring{A} 56'59	
opposition	1779 Jan 02 14:38	1° \mathring{A} 29'10		opposition	1787 Apr 07 12:21	17° \mathring{A} 35'01	1°43'04
min. Earth dist.	1779 Mar 20 21:01	0° \mathring{A} 07'14	1°26'03	min. Earth dist.	1787 Apr 08 10:04	17° \mathring{A} 33'32	29.29160 AU
direct	1779 Mar 21 17:25	0° \mathring{A} 05'50	29.26422 AU	direct	1787 Jun 27 13:08	16° \mathring{A} 10'03	
conjunction	1779 Mar 25 05:57	30° \mathring{R} \mathring{M}		max. Earth dist.	1787 Oct 11 03:51	18° \mathring{A} 38'53	31.29307 AU
minimum elong	1779 Jun 09 16:30	28° \mathring{M} 42'15		conjunction	1787 Oct 12 02:30	18° \mathring{A} 41'00	1°37'12
max. Earth dist.	1779 Aug 20 23:38	0° \mathring{A}		minimum elong	1787 Oct 12 02:30	18° \mathring{A} 41'00	1°37'13
conjunction	1779 Sep 24 11:34	1° \mathring{A} 13'41	1°21'49	retrograde	1788 Jan 22 07:07	21° \mathring{A} 07'30	
minimum elong	1779 Sep 24 11:34	1° \mathring{A} 13'41	1°21'49	opposition	1788 Apr 08 23:22	19° \mathring{A} 45'35	1°44'33
max. Earth dist.	1779 Sep 23 12:20	1° \mathring{A} 11'31	31.26619 AU	min. Earth dist.	1788 Apr 09 20:04	19° \mathring{A} 44'10	29.29676 AU
retrograde	1780 Jan 05 00:01	3° \mathring{A} 40'34		direct	1788 Jun 29 02:28	18° \mathring{A} 20'40	
opposition	1780 Mar 22 07:54	2° \mathring{A} 18'40	1°28'39	conjunction	1788 Oct 13 12:58	20° \mathring{A} 51'35	1°38'32
min. Earth dist.	1780 Mar 23 05:28	2° \mathring{A} 17'11	29.26962 AU	minimum elong	1788 Oct 13 12:58	20° \mathring{A} 51'35	1°38'31
direct	1780 Jun 11 03:25	0° \mathring{A} 53'41		max. Earth dist.	1788 Oct 12 14:13	20° \mathring{A} 49'28	31.29830 AU
conjunction	1780 Sep 25 22:58	3° \mathring{A} 25'05	1°24'11	retrograde	1789 Jan 23 17:04	23° \mathring{A} 18'06	
minimum elong	1780 Sep 25 22:58	3° \mathring{A} 25'05	1°24'10	opposition	1789 Apr 11 10:32	21° \mathring{A} 56'13	1°45'53
max. Earth dist.	1780 Sep 24 23:57	3° \mathring{A} 22'57	31.27085 AU	min. Earth dist.	1789 Apr 12 07:49	21° \mathring{A} 54'45	29.30207 AU
retrograde	1781 Jan 06 08:54	5° \mathring{A} 51'54		direct	1789 Jul 01 13:06	20° \mathring{A} 31'21	
opposition	1781 Mar 24 18:41	4° \mathring{A} 30'02	1°31'07	conjunction	1789 Oct 15 23:29	23° \mathring{A} 02'14	1°39'42
min. Earth dist.	1781 Mar 25 16:17	4° \mathring{A} 28'32	29.27355 AU				

minimum elong	1789 Oct 15 23:29	23° 0 02'14	1°39'43	conjunction	1797 Nov 02 08:42	10° M 26'59	1°43'54
max. Earth dist.	1789 Oct 15 01:36	23° 0 00'12	31.30344 AU	minimum elong	1797 Nov 02 08:42	10° M 26'59	1°43'55
retrograde	1790 Jan 26 02:42	25° 0 28'46		retrograde	1798 Feb 12 12:07	12° M 53'37	
opposition	1790 Apr 13 21:51	24° 0 06'55	1°47'04	opposition	1798 May 01 17:57	11° M 31'37	1°50'56
min. Earth dist.	1790 Apr 14 18:46	24° 0 05'29	29.30685 AU	min. Earth dist.	1798 May 02 13:35	11° M 30'17	29.31065 AU
direct	1790 Jul 04 02:33	22° 0 42'07		direct	1798 Jul 21 23:02	10° M 07'00	
max. Earth dist.	1790 Oct 17 10:59	25° 0 10'50	31.30780 AU				
conjunction	1790 Oct 18 09:43	25° 0 12'57	1°40'44	conjunction	1798 Nov 04 18:22	12° M 37'17	1°43'46
minimum elong	1790 Oct 18 09:43	25° 0 12'57	1°40'43	minimum elong	1798 Nov 04 18:22	12° M 37'17	1°43'46
retrograde	1791 Jan 28 13:44	27° 0 39'30		max. Earth dist.	1798 Nov 03 22:58	12° M 35'28	31.30954 AU
opposition	1791 Apr 16 09:12	26° 0 17'39	1°48'05	retrograde	1799 Jan 30 16:02	15° M	
min. Earth dist.	1791 Apr 17 06:02	26° 0 16'14	29.31083 AU		1799 Feb 14 21:50	15° M 03'57	
direct	1791 Jul 06 13:13	24° 0 52'54			1799 Mar 02 06:56	15° R M	
conjunction	1791 Oct 20 20:14	27° 0 23'42	1°41'38	opposition	1799 May 04 05:39	13° M 41'57	1°50'43
minimum elong	1791 Oct 20 20:13	27° 0 23'42	1°41'38	min. Earth dist.	1799 May 05 00:18	13° M 40'41	29.31102 AU
max. Earth dist.	1791 Oct 19 22:29	27° 0 21'40	31.31111 AU	direct	1799 Jul 24 12:50	12° M 17'24	
retrograde	1792 Jan 30 21:57	29° 0 50'15		max. Earth dist.	1799 Nov 06 08:17	14° M 45'46	31.31042 AU
opposition	1792 Apr 17 20:33	28° 0 28'25	1°48'58	conjunction	1799 Nov 07 04:01	14° M 47'37	1°43'29
min. Earth dist.	1792 Apr 18 17:55	28° 0 26'58	29.31344 AU	minimum elong	1799 Nov 07 04:01	14° M 47'37	1°43'30
direct	1792 Jul 08 01:40	27° 0 03'43			1799 Nov 12 16:15	15° M	
max. Earth dist.	1792 Oct 21 07:42	29° 0 32'18	31.31309 AU	retrograde	1800 Feb 17 09:20	17° M 14'21	
conjunction	1792 Oct 22 06:34	29° 0 34'26	1°42'22	opposition	1800 May 06 17:13	15° M 52'22	1°50'20
minimum elong	1792 Oct 22 06:33	29° 0 34'26	1°42'22	min. Earth dist.	1800 May 07 11:08	15° M 51'09	29.31231 AU
retrograde	1792 Nov 02 17:11	0° M		direct	1800 Jun 10 08:27	15° R M	
opposition	1793 Feb 01 08:28	2° M 01'00			1800 Jul 26 23:39	14° M 27'53	
min. Earth dist.	1793 Apr 20 08:01	0° M 39'10	1°49'41	conjunction	1800 Sep 10 01:03	15° M	
direct	1793 Apr 21 04:43	0° M 37'45	29.31478 AU				
	1793 May 15 04:25	30° R 0		conjunction	1800 Nov 09 13:48	16° M 58'04	1°43'03
	1793 Jul 10 12:25	29° 0 14'29		minimum elong	1800 Nov 09 13:48	16° M 58'04	1°43'03
	1793 Sep 02 17:31	0° M		max. Earth dist.	1800 Nov 08 19:45	16° M 56'23	31.31196 AU
conjunction	1793 Oct 24 16:51	1° M 45'09	1°42'58	retrograde	1801 Feb 19 17:42	19° M 24'53	
minimum elong	1793 Oct 24 16:51	1° M 45'09	1°42'59	opposition	1801 May 09 05:10	18° M 02'56	1°49'48
max. Earth dist.	1793 Oct 23 19:02	1° M 43'06	31.31369 AU	min. Earth dist.	1801 May 09 23:01	18° M 01'43	29.31389 AU
retrograde	1794 Feb 03 17:27	4° M 11'43		direct	1801 Jul 29 11:57	16° M 38'32	
opposition	1794 Apr 22 19:42	2° M 49'52	1°50'15	conjunction	1801 Nov 11 23:17	19° M 08'40	1°42'28
min. Earth dist.	1794 Apr 23 17:15	2° M 48'23	29.31478 AU	minimum elong	1801 Nov 11 23:17	19° M 08'40	1°42'29
direct	1794 Jul 12 23:15	1° M 25'11		max. Earth dist.	1801 Nov 11 04:49	19° M 06'56	31.31363 AU
max. Earth dist.	1794 Oct 26 04:40	3° M 53'40	31.31325 AU	retrograde	1802 Feb 22 04:14	21° M 35'35	
conjunction	1794 Oct 27 02:59	3° M 55'46	1°43'25	opposition	1802 May 11 17:06	20° M 13'38	1°49'06
minimum elong	1794 Oct 27 02:59	3° M 55'46	1°43'25	min. Earth dist.	1802 May 12 09:45	20° M 12'30	29.31541 AU
retrograde	1795 Feb 06 04:29	6° M 22'20		direct	1802 Jul 31 22:24	18° M 49'19	
opposition	1795 Apr 25 07:04	5° M 00'27	1°50'39	conjunction	1802 Nov 14 09:03	21° M 19'25	1°41'44
min. Earth dist.	1795 Apr 26 03:26	4° M 59'04	29.31388 AU	minimum elong	1802 Nov 14 09:03	21° M 19'25	1°41'44
direct	1795 Jul 15 11:13	3° M 35'47		max. Earth dist.	1802 Nov 13 15:56	21° M 17'48	31.31481 AU
conjunction	1795 Oct 29 13:03	6° M 06'17	1°43'44	retrograde	1803 Feb 24 13:46	23° M 46'25	
minimum elong	1795 Oct 29 13:02	6° M 06'17	1°43'45	opposition	1803 May 14 05:07	22° M 24'29	1°48'14
max. Earth dist.	1795 Oct 28 15:19	6° M 04'15	31.31197 AU	min. Earth dist.	1803 May 14 22:26	22° M 23'18	29.31621 AU
retrograde	1796 Feb 08 15:03	8° M 32'52		direct	1803 Aug 03 08:36	21° M 00'13	
opposition	1796 Apr 26 18:42	7° M 10'56	1°50'54	conjunction	1803 Nov 16 18:42	23° M 30'16	1°40'52
min. Earth dist.	1796 Apr 27 15:45	7° M 09'30	29.31247 AU	minimum elong	1803 Nov 16 18:43	23° M 30'16	1°40'52
direct	1796 Jul 16 23:09	5° M 46'16		max. Earth dist.	1803 Nov 16 01:22	23° M 28'38	31.31516 AU
conjunction	1796 Oct 30 22:55	8° M 16'41	1°43'54	retrograde	1804 Feb 27 01:00	25° M 57'21	
minimum elong	1796 Oct 30 22:55	8° M 16'41	1°43'53	opposition	1804 May 15 17:10	24° M 35'25	1°47'13
max. Earth dist.	1796 Oct 30 01:44	8° M 14'42	31.31057 AU	min. Earth dist.	1804 May 16 09:07	24° M 34'20	29.31587 AU
retrograde	1797 Feb 10 01:57	10° M 43'17		direct	1804 Aug 04 20:22	23° M 11'12	
opposition	1797 Apr 29 06:14	9° M 21'18	1°51'00	max. Earth dist.	1804 Nov 17 11:32	25° M 39'36	31.31406 AU
min. Earth dist.	1797 Apr 30 01:56	9° M 19'58	29.31113 AU	conjunction	1804 Nov 18 04:24	25° M 41'11	1°39'50
direct	1797 Jul 19 12:22	7° M 56'39		minimum elong	1804 Nov 18 04:24	25° M 41'11	1°39'50
max. Earth dist.	1797 Nov 01 11:45	10° M 25'02	31.30954 AU	retrograde	1805 Feb 28 11:59	28° M 08'21	
				opposition	1805 May 18 05:30	26° M 46'23	1°46'03
				min. Earth dist.	1805 May 18 22:06	26° M 45'15	29.31410 AU
				direct	1805 Aug 07 07:20	25° M 22'13	

conjunction	1805 Nov 20 14:06	27° ℓ 52'07	1°38'40	direct	1813 Aug 25 07:03	12° ♊ 47'37	
minimum elong	1805 Nov 20 14:06	27° ℓ 52'07	1°38'41				
max. Earth dist.	1805 Nov 19 21:44	27° ℓ 50'35	31.31163 AU	conjunction	1813 Dec 07 17:04	15° ♊ 16'51	1°24'30
	1806 Jan 28 00:47	0° ♊		minimum elong	1813 Dec 07 17:04	15° ♊ 16'51	1°24'31
retrograde	1806 Mar 02 23:09	0° ♊ 19'21		max. Earth dist.	1813 Dec 07 06:27	15° ♊ 15'51	31.27308 AU
	1806 Apr 06 21:42	30° ♈		retrograde	1814 Mar 20 11:50	17° ♊ 44'46	
opposition	1806 May 20 17:44	28° ℓ 57'20	1°44'44	opposition	1814 Jun 07 20:39	16° ♊ 22'22	1°29'02
min. Earth dist.	1806 May 21 09:09	28° ℓ 56'18	29.31081 AU	min. Earth dist.	1814 Jun 08 06:54	16° ♊ 21'40	29.27212 AU
direct	1806 Aug 09 19:40	27° ℓ 33'12		direct	1814 Aug 27 16:53	14° ♊ 58'28	
	1806 Nov 21 15:40	0° ♊					
conjunction	1806 Nov 22 23:38	0° ♊ 03'00	1°37'22	conjunction	1814 Dec 10 02:18	17° ♊ 27'41	1°22'09
minimum elong	1806 Nov 22 23:38	0° ♊ 03'00	1°37'22	minimum elong	1814 Dec 10 02:18	17° ♊ 27'41	1°22'08
max. Earth dist.	1806 Nov 22 07:05	0° ♊ 01'27	31.30763 AU	max. Earth dist.	1814 Dec 09 16:48	17° ♊ 26'47	31.26969 AU
retrograde	1807 Mar 05 10:19	2° ♊ 30'18		retrograde	1815 Mar 22 23:21	19° ♊ 55'44	
opposition	1807 May 23 06:03	1° ♊ 08'13	1°43'16	opposition	1815 Jun 10 09:11	18° ♊ 33'20	1°26'27
min. Earth dist.	1807 May 23 21:43	1° ♊ 07'09	29.30616 AU	min. Earth dist.	1815 Jun 10 17:55	18° ♊ 32'45	29.26836 AU
	1807 Jul 11 04:40	30° ♈		direct	1815 Aug 30 04:10	17° ♊ 09'31	
direct	1807 Aug 12 06:55	29° ℓ 44'05		conjunction	1815 Dec 12 11:35	19° ♊ 38'42	1°19'40
	1807 Sep 12 18:40	0° ♊		minimum elong	1815 Dec 12 11:36	19° ♊ 38'42	1°19'40
conjunction	1807 Nov 25 09:15	2° ♊ 13'47	1°35'56	max. Earth dist.	1815 Dec 12 02:05	19° ♊ 37'48	31.26561 AU
minimum elong	1807 Nov 25 09:15	2° ♊ 13'47	1°35'56	retrograde	1816 Mar 24 11:34	22° ♊ 06'55	
max. Earth dist.	1807 Nov 24 18:02	2° ♊ 12'21	31.30243 AU	opposition	1816 Jun 11 21:52	20° ♊ 44'29	1°23'45
retrograde	1808 Mar 06 20:40	4° ♊ 41'06		min. Earth dist.	1816 Jun 12 06:38	20° ♊ 43'54	29.26390 AU
opposition	1808 May 24 18:13	3° ♊ 18'58	1°41'39	direct	1816 Aug 31 14:44	19° ♊ 20'44	
min. Earth dist.	1808 May 25 09:12	3° ♊ 17'57	29.30036 AU	conjunction	1816 Dec 13 21:05	21° ♊ 49'53	1°17'05
direct	1808 Aug 13 21:12	1° ♊ 54'49		minimum elong	1816 Dec 13 21:05	21° ♊ 49'53	1°17'04
conjunction	1808 Nov 26 18:39	4° ♊ 24'25	1°34'21	max. Earth dist.	1816 Dec 13 13:07	21° ♊ 49'08	31.26065 AU
minimum elong	1808 Nov 26 18:39	4° ♊ 24'25	1°34'21	retrograde	1817 Mar 26 23:23	24° ♊ 18'15	
max. Earth dist.	1808 Nov 26 03:04	4° ♊ 22'57	31.29643 AU	opposition	1817 Jun 14 10:42	22° ♊ 55'48	1°20'55
retrograde	1809 Mar 09 08:25	6° ♊ 51'48		min. Earth dist.	1817 Jun 14 18:38	22° ♊ 55'16	29.25822 AU
opposition	1809 May 27 06:35	5° ♊ 29'34	1°39'54	direct	1817 Sep 03 04:19	21° ♊ 32'06	
min. Earth dist.	1809 May 27 20:40	5° ♊ 28'37	29.29430 AU	conjunction	1817 Dec 16 06:21	24° ♊ 01'12	1°14'22
direct	1809 Aug 16 08:48	4° ♊ 05'25		minimum elong	1817 Dec 16 06:21	24° ♊ 01'12	1°14'23
conjunction	1809 Nov 29 03:59	6° ♊ 34'55	1°32'39	max. Earth dist.	1817 Dec 15 21:54	24° ♊ 00'24	31.25439 AU
minimum elong	1809 Nov 29 03:59	6° ♊ 34'55	1°32'39	retrograde	1818 Mar 29 12:21	26° ♊ 29'42	
max. Earth dist.	1809 Nov 28 14:18	6° ♊ 33'38	31.29041 AU	opposition	1818 Jun 16 23:34	25° ♊ 07'12	1°17'58
retrograde	1810 Mar 11 16:56	9° ♊ 02'21		min. Earth dist.	1818 Jun 17 06:47	25° ♊ 06'43	29.25128 AU
opposition	1810 May 29 19:01	7° ♊ 40'03	1°38'01	direct	1818 Sep 05 15:30	23° ♊ 43'32	
min. Earth dist.	1810 May 30 08:41	7° ♊ 39'08	29.28843 AU	conjunction	1818 Dec 18 15:57	26° ♊ 12'35	1°11'34
direct	1810 Aug 18 21:39	6° ♊ 15'55		minimum elong	1818 Dec 18 15:57	26° ♊ 12'36	1°11'34
conjunction	1810 Dec 01 13:14	8° ♊ 45'19	1°30'48	max. Earth dist.	1818 Dec 18 08:58	26° ♊ 11'56	31.24669 AU
minimum elong	1810 Dec 01 13:14	8° ♊ 45'19	1°30'48	retrograde	1819 Mar 31 21:50	28° ♊ 41'12	
max. Earth dist.	1810 Nov 30 23:31	8° ♊ 44'02	31.28498 AU	opposition	1819 Jun 19 12:19	27° ♊ 18'39	1°14'55
retrograde	1811 Mar 14 03:38	11° ♊ 12'50		min. Earth dist.	1819 Jun 19 19:30	27° ♊ 18'10	29.24277 AU
opposition	1811 Jun 01 07:11	9° ♊ 50'29	1°35'58	direct	1819 Sep 08 04:24	25° ♊ 55'00	
min. Earth dist.	1811 Jun 01 19:11	9° ♊ 49'41	29.28341 AU	conjunction	1819 Dec 21 01:20	28° ♊ 23'58	1°08'39
direct	1811 Aug 21 08:52	8° ♊ 26'23		minimum elong	1819 Dec 21 01:20	28° ♊ 23'58	1°08'40
conjunction	1811 Dec 03 22:37	10° ♊ 55'44	1°28'50	max. Earth dist.	1819 Dec 20 18:01	28° ♊ 23'17	31.23766 AU
minimum elong	1811 Dec 03 22:37	10° ♊ 55'44	1°28'51		1820 Feb 04 23:57	0° ♊	
max. Earth dist.	1811 Dec 03 10:35	10° ♊ 54'36	31.28034 AU	retrograde	1820 Apr 02 09:23	0° ♊ 52'41	
retrograde	1812 Mar 15 13:20	13° ♊ 23'21			1820 Jun 02 03:07	30° ♈	
opposition	1812 Jun 02 19:39	12° ♊ 00'59	1°33'48	opposition	1820 Jun 21 01:08	29° ♊ 30'03	1°11'46
min. Earth dist.	1812 Jun 03 07:43	12° ♊ 00'10	29.27914 AU	min. Earth dist.	1820 Jun 21 06:57	29° ♊ 29'39	29.23313 AU
direct	1812 Aug 22 19:42	10° ♊ 36'56		direct	1820 Sep 09 16:50	28° ♊ 06'24	
conjunction	1812 Dec 05 07:46	13° ♊ 06'13	1°26'44		1820 Dec 06 18:22	0° ♊	
minimum elong	1812 Dec 05 07:46	13° ♊ 06'13	1°26'43	conjunction	1820 Dec 22 10:39	0° ♊ 35'17	1°05'39
max. Earth dist.	1812 Dec 04 20:17	13° ♊ 05'08	31.27655 AU	minimum elong	1820 Dec 22 10:39	0° ♊ 35'17	1°05'39
retrograde	1813 Mar 18 00:27	15° ♊ 33'58		max. Earth dist.	1820 Dec 22 04:47	0° ♊ 34'44	31.22757 AU
opposition	1813 Jun 05 08:04	14° ♊ 11'35	1°31'29	retrograde	1821 Apr 04 19:36	3° ♊ 04'06	
min. Earth dist.	1813 Jun 05 18:07	14° ♊ 10'54	29.27550 AU	opposition	1821 Jun 23 14:08	1° ♊ 41'21	1°08'30
				min. Earth dist.	1821 Jun 23 20:06	1° ♊ 40'57	29.22278 AU

direct	1821 Sep 12 04:50	0°☾17'42		minimum elong	1830 Jan 10 22:50	20°☾17'06	0°34'52
				max. Earth dist.	1830 Jan 11 01:28	20°☾17'21	31.15633 AU
conjunction	1821 Dec 24 19:55	2°☾46'28 1°02'33		retrograde	1830 Apr 25 05:06	22°☾47'16	
minimum elong	1821 Dec 24 19:55	2°☾46'28 1°02'34		opposition	1830 Jul 14 10:31	21°☾24'00	0°35'13
max. Earth dist.	1821 Dec 24 14:44	2°☾45'59 31.21731 AU		min. Earth dist.	1830 Jul 14 08:06	21°☾24'09	29.15234 AU
retrograde	1822 Apr 07 05:55	5°☾15'24		direct	1830 Oct 02 10:46	20°☾00'40	
opposition	1822 Jun 26 02:50	3°☾52'33 1°05'09					
min. Earth dist.	1822 Jun 26 06:46	3°☾52'17 29.21260 AU		conjunction	1831 Jan 13 08:34	22°☾29'02	0°31'06
direct	1822 Sep 14 16:38	2°☾28'53		minimum elong	1831 Jan 13 08:34	22°☾29'02	0°31'05
				max. Earth dist.	1831 Jan 13 11:35	22°☾29'19	31.14779 AU
conjunction	1822 Dec 27 05:08	4°☾57'34 0°59'22		retrograde	1831 Apr 27 16:34	24°☾59'22	
minimum elong	1822 Dec 27 05:08	4°☾57'34 0°59'22		opposition	1831 Jul 16 23:37	23°☾36'02	0°31'11
max. Earth dist.	1822 Dec 27 00:50	4°☾57'10 31.20736 AU		min. Earth dist.	1831 Jul 16 19:32	23°☾36'19	29.14306 AU
retrograde	1823 Apr 09 16:30	7°☾26'38		direct	1831 Oct 04 22:45	22°☾12'44	
opposition	1823 Jun 28 15:44	6°☾03'41 1°01'42					
min. Earth dist.	1823 Jun 28 19:32	6°☾03'25 29.20310 AU		conjunction	1832 Jan 15 18:15	24°☾41'04	0°27'18
direct	1823 Sep 17 02:39	4°☾40'01		minimum elong	1832 Jan 15 18:15	24°☾41'04	0°27'18
				max. Earth dist.	1832 Jan 15 21:34	24°☾41'23	31.13781 AU
conjunction	1823 Dec 29 14:23	7°☾08'38 0°56'06		retrograde	1832 Apr 29 03:46	27°☾11'33	
minimum elong	1823 Dec 29 14:23	7°☾08'38 0°56'06		opposition	1832 Jul 18 12:53	25°☾48'09	0°27'05
max. Earth dist.	1823 Dec 29 11:39	7°☾08'22 31.19839 AU		min. Earth dist.	1832 Jul 18 09:10	25°☾48'24	29.13253 AU
retrograde	1824 Apr 11 03:30	9°☾37'48		direct	1832 Oct 06 09:12	24°☾24'51	
opposition	1824 Jun 30 04:28	8°☾14'47 0°58'09					
min. Earth dist.	1824 Jun 30 06:16	8°☾14'40 29.19453 AU		conjunction	1833 Jan 17 04:04	26°☾53'07	0°23'27
direct	1824 Sep 18 13:47	6°☾51'09		minimum elong	1833 Jan 17 04:04	26°☾53'07	0°23'27
				max. Earth dist.	1833 Jan 17 08:38	26°☾53'33	31.12691 AU
conjunction	1824 Dec 30 23:36	9°☾19'42 0°52'45		retrograde	1833 May 01 15:17	29°☾23'44	
minimum elong	1824 Dec 30 23:37	9°☾19'42 0°52'44		opposition	1833 Jul 21 02:02	28°☾00'15	0°22'58
max. Earth dist.	1824 Dec 30 21:14	9°☾19'29 31.19042 AU		min. Earth dist.	1833 Jul 20 20:40	28°☾00'37	29.12119 AU
retrograde	1825 Apr 13 16:07	11°☾49'02		direct	1833 Oct 08 20:48	26°☾36'56	
opposition	1825 Jul 02 17:27	10°☾25'58 0°54'31					
min. Earth dist.	1825 Jul 02 18:43	10°☾25'53 29.18711 AU		conjunction	1834 Jan 19 13:40	29°☾05'09	0°19'35
direct	1825 Sep 21 00:07	9°☾02'22		minimum elong	1834 Jan 19 13:40	29°☾05'09	0°19'35
				max. Earth dist.	1834 Jan 19 18:17	29°☾05'35	31.11540 AU
conjunction	1826 Jan 02 08:54	11°☾30'52 0°49'18			1834 Feb 13 04:46	0°≈	
minimum elong	1826 Jan 02 08:55	11°☾30'52 0°49'19		retrograde	1834 May 04 03:59	1°≈35'55	
max. Earth dist.	1826 Jan 02 08:39	11°☾30'51 31.18344 AU		opposition	1834 Jul 23 15:15	0°≈12'19	0°18'48
retrograde	1826 Apr 16 04:07	14°☾00'22		min. Earth dist.	1834 Jul 23 09:42	0°≈12'42	29.10974 AU
opposition	1826 Jul 05 06:23	12°☾37'15 0°50'48			1834 Jul 31 05:27	30°☾☾	
min. Earth dist.	1826 Jul 05 06:23	12°☾37'15 29.18032 AU		direct	1834 Oct 11 07:16	28°☾49'01	
direct	1826 Sep 23 12:23	11°☾13'42			1834 Dec 17 08:32	0°≈	
conjunction	1827 Jan 04 18:13	13°☾42'10 0°45'48		conjunction	1835 Jan 21 23:30	1°≈17'10	0°15'41
minimum elong	1827 Jan 04 18:13	13°☾42'11 0°45'47		minimum elong	1835 Jan 21 23:30	1°≈17'10	0°15'40
max. Earth dist.	1827 Jan 04 17:49	13°☾42'08 31.17695 AU		behind sun begin	1835 Jan 21 21:44	1°≈17'01	
retrograde	1827 Apr 18 17:23	16°☾11'50		behind sun end	1835 Jan 22 01:15	1°≈17'20	
opposition	1827 Jul 07 19:11	14°☾48'40 0°47'01		max. Earth dist.	1835 Jan 22 06:06	1°≈17'47	31.10407 AU
min. Earth dist.	1827 Jul 07 18:11	14°☾48'44 29.17397 AU		retrograde	1835 May 06 15:58	3°≈48'04	
direct	1827 Sep 25 22:27	13°☾25'11		opposition	1835 Jul 26 04:12	2°≈24'23	0°14'37
				min. Earth dist.	1835 Jul 25 21:23	2°≈24'51	29.09865 AU
conjunction	1828 Jan 07 03:45	15°☾53'39 0°42'13		direct	1835 Oct 13 19:10	1°≈01'04	
minimum elong	1828 Jan 07 03:46	15°☾53'39 0°42'13					
max. Earth dist.	1828 Jan 07 05:11	15°☾53'47 31.17056 AU		conjunction	1836 Jan 24 09:11	3°≈29'12	0°11'45
retrograde	1828 Apr 20 04:25	18°☾23'28		minimum elong	1836 Jan 24 09:11	3°≈29'12	0°11'46
opposition	1828 Jul 09 08:17	17°☾00'17 0°43'09		behind sun begin	1836 Jan 24 04:37	3°≈28'47	
min. Earth dist.	1828 Jul 09 06:56	17°☾00'22 29.16740 AU		behind sun end	1836 Jan 24 13:45	3°≈29'37	
direct	1828 Sep 27 11:02	15°☾36'51		max. Earth dist.	1836 Jan 24 15:46	3°≈29'48	31.09348 AU
				retrograde	1836 May 08 05:27	6°≈00'16	
conjunction	1829 Jan 08 13:09	18°☾05'17 0°38'34		opposition	1836 Jul 27 17:20	4°≈36'30	0°10'24
minimum elong	1829 Jan 08 13:09	18°☾05'17 0°38'33		min. Earth dist.	1836 Jul 27 09:20	4°≈37'02	29.08866 AU
max. Earth dist.	1829 Jan 08 14:34	18°☾05'25 31.16387 AU		direct	1836 Oct 15 04:51	3°≈13'11	
retrograde	1829 Apr 22 17:42	20°☾35'17					
opposition	1829 Jul 11 21:23	19°☾12'03 0°39'13		conjunction	1837 Jan 25 18:57	5°≈41'18	0°07'49
min. Earth dist.	1829 Jul 11 18:33	19°☾12'15 29.16037 AU		minimum elong	1837 Jan 25 18:57	5°≈41'18	0°07'49
direct	1829 Sep 29 23:05	17°☾48'41		behind sun begin	1837 Jan 25 13:10	5°≈40'47	
				behind sun end	1837 Jan 26 00:44	5°≈41'50	
conjunction	1830 Jan 10 22:50	20°☾17'06 0°34'51		max. Earth dist.	1837 Jan 26 03:34	5°≈42'06	31.08396 AU

retrograde	1837 May 10 17:19	8° \approx 12'32		direct	1843 Oct 31 13:49	18° \approx 42'42	
opposition	1837 Jul 30 06:31	6° \approx 48'42	0°06'10				
min. Earth dist.	1837 Jul 29 21:49	6° \approx 49'17	29.07968 AU	conjunction	1844 Feb 10 18:22	21° \approx 10'47	0°-20'00
direct	1837 Oct 17 17:25	5° \approx 25'26		minimum elong	1844 Feb 10 18:22	21° \approx 10'47	0°20'01
				max. Earth dist.	1844 Feb 11 08:09	21° \approx 12'05	31.02909 AU
conjunction	1838 Jan 28 04:48	7° \approx 53'32	0°03'52	retrograde	1844 May 26 08:51	23° \approx 43'11	
minimum elong	1838 Jan 28 04:48	7° \approx 53'32	0°03'53	opposition	1844 Aug 15 02:52	22° \approx 19'02	0°-23'-29
behind sun begin	1838 Jan 27 22:28	7° \approx 52'58		min. Earth dist.	1844 Aug 14 13:14	22° \approx 19'58	29.02400 AU
behind sun end	1838 Jan 28 11:07	7° \approx 54'06		direct	1844 Nov 02 01:30	20° \approx 56'01	
max. Earth dist.	1838 Jan 28 13:42	7° \approx 54'21	31.07562 AU				
retrograde	1838 May 13 07:50	10° \approx 24'55		conjunction	1845 Feb 12 04:49	23° \approx 24'03	0°-23'-54
opposition	1838 Aug 01 19:28	9° \approx 01'03	0°01'55	minimum elong	1845 Feb 12 04:48	23° \approx 24'03	0°23'55
min. Earth dist.	1838 Aug 01 09:05	9° \approx 01'45	29.07182 AU	max. Earth dist.	1845 Feb 12 18:00	23° \approx 25'18	31.01843 AU
direct	1838 Oct 20 05:24	7° \approx 37'50		retrograde	1845 May 28 22:48	25° \approx 56'35	
desc. node	1839 Jan 14 11:10	9° \approx 29'29		opposition	1845 Aug 17 16:09	24° \approx 32'20	0°-27'-38
				min. Earth dist.	1845 Aug 17 02:04	24° \approx 33'18	29.01290 AU
conjunction	1839 Jan 30 14:47	10° \approx 05'56	0°00'-10	direct	1845 Nov 04 11:34	23° \approx 09'16	
minimum elong	1839 Jan 30 14:47	10° \approx 05'56	0°00'11				
behind sun begin	1839 Jan 30 08:27	10° \approx 05'22		conjunction	1846 Feb 14 15:34	25° \approx 37'17	0°-27'-46
behind sun end	1839 Jan 30 21:07	10° \approx 06'31		minimum elong	1846 Feb 14 15:34	25° \approx 37'17	0°27'47
max. Earth dist.	1839 Jan 31 01:04	10° \approx 06'54	31.06805 AU	max. Earth dist.	1846 Feb 15 06:10	25° \approx 38'39	31.00688 AU
retrograde	1839 May 15 19:54	12° \approx 37'30		retrograde	1846 May 31 10:53	28° \approx 09'55	
opposition	1839 Aug 04 08:40	11° \approx 13'36	0°-2'-19	opposition	1846 Aug 20 05:12	26° \approx 45'33	0°-31'-45
min. Earth dist.	1839 Aug 03 22:24	11° \approx 14'18	29.06458 AU	min. Earth dist.	1846 Aug 19 14:56	26° \approx 46'32	29.00115 AU
direct	1839 Oct 22 16:48	9° \approx 50'26		direct	1846 Nov 07 00:12	25° \approx 22'27	
conjunction	1840 Feb 02 00:45	12° \approx 18'32	0°-4'-13	conjunction	1847 Feb 17 02:10	27° \approx 50'25	0°-31'-36
minimum elong	1840 Feb 02 00:44	12° \approx 18'32	0°04'14	minimum elong	1847 Feb 17 02:10	27° \approx 50'25	0°31'37
behind sun begin	1840 Feb 01 18:26	12° \approx 17'58		max. Earth dist.	1847 Feb 17 16:45	27° \approx 51'48	30.99517 AU
behind sun end	1840 Feb 02 07:02	12° \approx 19'06			1847 Apr 26 02:55	0° \approx	
max. Earth dist.	1840 Feb 02 11:53	12° \approx 19'35	31.06109 AU	retrograde	1847 Jun 03 01:32	0° \approx 23'10	
retrograde	1840 May 17 08:00	14° \approx 50'17			1847 Jul 11 23:06	30° \approx	
opposition	1840 Aug 05 21:48	13° \approx 26'21	0°-6'-35	opposition	1847 Aug 22 18:14	28° \approx 58'42	0°-35'-49
min. Earth dist.	1840 Aug 05 09:41	13° \approx 27'11	29.05767 AU	min. Earth dist.	1847 Aug 22 02:38	28° \approx 59'46	28.98962 AU
direct	1840 Oct 24 04:56	12° \approx 03'15		direct	1847 Nov 09 12:02	27° \approx 35'34	
					1848 Feb 17 23:44	0° \approx	
conjunction	1841 Feb 03 10:54	14° \approx 31'21	0°-8'-10				
minimum elong	1841 Feb 03 10:53	14° \approx 31'21	0°08'12	conjunction	1848 Feb 19 12:44	0° \approx 03'31	0°-35'-22
behind sun begin	1841 Feb 03 05:11	14° \approx 30'50		minimum elong	1848 Feb 19 12:44	0° \approx 03'31	0°35'23
behind sun end	1841 Feb 03 16:36	14° \approx 31'52		max. Earth dist.	1848 Feb 20 04:33	0° \approx 05'00	30.98379 AU
max. Earth dist.	1841 Feb 03 22:26	14° \approx 32'26	31.05411 AU	retrograde	1848 Jun 04 13:31	2° \approx 36'22	
	1841 Feb 16 02:14	15° \approx		opposition	1848 Aug 24 07:25	1° \approx 11'49	0°-39'-50
retrograde	1841 May 19 20:20	17° \approx 03'17		min. Earth dist.	1848 Aug 23 15:56	1° \approx 12'52	28.97875 AU
opposition	1841 Aug 08 11:08	15° \approx 39'19	0°-10'-50		1848 Oct 15 18:16	30° \approx	
min. Earth dist.	1841 Aug 07 23:22	15° \approx 40'07	29.05066 AU	direct	1848 Nov 10 23:34	29° \approx 48'39	
	1841 Sep 02 11:57	15° \approx			1848 Dec 06 17:15	0° \approx	
direct	1841 Oct 26 15:39	14° \approx 16'15					
	1841 Dec 17 03:21	15° \approx		conjunction	1849 Feb 20 23:30	2° \approx 16'35	0°-39'-6
				minimum elong	1849 Feb 20 23:30	2° \approx 16'35	0°39'07
conjunction	1842 Feb 05 21:15	16° \approx 44'21	0°-12'-8	max. Earth dist.	1849 Feb 21 16:11	2° \approx 18'10	30.97349 AU
minimum elong	1842 Feb 05 21:15	16° \approx 44'21	0°12'09	retrograde	1849 Jun 07 02:55	4° \approx 49'35	
behind sun begin	1842 Feb 05 16:51	16° \approx 43'57		opposition	1849 Aug 26 20:20	3° \approx 24'57	0°-43'-47
behind sun end	1842 Feb 06 01:39	16° \approx 44'45		min. Earth dist.	1849 Aug 26 03:01	3° \approx 26'08	28.96904 AU
max. Earth dist.	1842 Feb 06 10:03	16° \approx 45'33	31.04683 AU	direct	1849 Nov 13 12:04	2° \approx 01'47	
retrograde	1842 May 22 08:36	19° \approx 16'27					
min. Earth dist.	1842 Aug 10 11:09	17° \approx 53'21	29.04292 AU	conjunction	1850 Feb 23 10:16	4° \approx 29'44	0°-42'-46
opposition	1842 Aug 11 00:19	17° \approx 52'27	0°-15'-4	minimum elong	1850 Feb 23 10:16	4° \approx 29'44	0°42'47
direct	1842 Oct 29 03:40	16° \approx 29'25		max. Earth dist.	1850 Feb 24 03:20	4° \approx 31'21	30.96425 AU
				retrograde	1850 Jun 09 16:00	7° \approx 02'52	
conjunction	1843 Feb 08 07:41	18° \approx 57'31	0°-16'-5	opposition	1850 Aug 29 09:26	5° \approx 38'11	0°-47'-41
minimum elong	1843 Feb 08 07:41	18° \approx 57'31	0°16'06	min. Earth dist.	1850 Aug 28 16:21	5° \approx 39'21	28.96047 AU
behind sun begin	1843 Feb 08 06:54	18° \approx 57'27		direct	1850 Nov 15 23:08	4° \approx 15'03	
behind sun end	1843 Feb 08 08:27	18° \approx 57'35					
max. Earth dist.	1843 Feb 08 20:00	18° \approx 58'40	31.03854 AU	conjunction	1851 Feb 25 21:13	6° \approx 43'01	0°-46'-23
retrograde	1843 May 24 21:07	21° \approx 29'47		minimum elong	1851 Feb 25 21:13	6° \approx 43'01	0°46'24
opposition	1843 Aug 13 13:34	20° \approx 05'43	0°-19'-17	max. Earth dist.	1851 Feb 26 15:43	6° \approx 44'46	30.95620 AU
min. Earth dist.	1843 Aug 13 00:42	20° \approx 06'36	29.03414 AU	retrograde	1851 Jun 12 04:24	9° \approx 16'17	

opposition	1851 Aug 31 22:16	7° ✕ 51'34	0°-51'-30	conjunction	1860 Mar 17 04:31	26° ✕ 49'54	-1°-15'-12
min. Earth dist.	1851 Aug 31 03:32	7° ✕ 52'52	28.95287 AU	minimum elong	1860 Mar 17 04:31	26° ✕ 49'54	1°15'13
direct	1851 Nov 18 11:18	6° ✕ 28'28		max. Earth dist.	1860 Mar 18 02:17	26° ✕ 51'57	30.88461 AU
				retrograde	1860 Jul 02 04:38	29° ✕ 24'12	
conjunction	1852 Feb 28 08:07	8° ✕ 56'28	0°-49'-55	opposition	1860 Sep 20 18:29	27° ✕ 59'02	-1°-21'-53
minimum elong	1852 Feb 28 08:07	8° ✕ 56'28	0°49'56	min. Earth dist.	1860 Sep 19 21:14	28° ✕ 00'30	28.88093 AU
max. Earth dist.	1852 Feb 29 02:27	8° ✕ 58'12	30.94905 AU	direct	1860 Dec 07 18:45	26° ✕ 35'51	
retrograde	1852 Jun 13 17:05	11° ✕ 29'55					
opposition	1852 Sep 02 11:22	10° ✕ 05'11	0°-55'-16	conjunction	1861 Mar 19 16:13	29° ✕ 04'03	-1°-17'-54
min. Earth dist.	1852 Sep 01 16:45	10° ✕ 06'27	28.94620 AU	minimum elong	1861 Mar 19 16:13	29° ✕ 04'02	1°17'55
direct	1852 Nov 19 21:05	8° ✕ 42'07		max. Earth dist.	1861 Mar 20 13:35	29° ✕ 06'04	30.87606 AU
					1861 Apr 13 20:29	0° Υ	
conjunction	1853 Mar 01 19:16	11° ✕ 10'09	0°-53'-23	retrograde	1861 Jul 04 17:19	1° Υ 38'26	
minimum elong	1853 Mar 01 19:15	11° ✕ 10'09	0°53'25	min. Earth dist.	1861 Sep 22 10:13	0° Υ 14'38	28.87311 AU
max. Earth dist.	1853 Mar 02 15:19	11° ✕ 12'03	30.94257 AU	opposition	1861 Sep 23 07:09	0° Υ 13'10	-1°-24'-43
retrograde	1853 Jun 16 05:01	13° ✕ 43'46			1861 Oct 01 05:45	30° R ✕	
min. Earth dist.	1853 Sep 04 04:57	12° ✕ 20'21	28.93982 AU	direct	1861 Dec 10 05:18	28° ✕ 49'57	
opposition	1853 Sep 05 00:21	12° ✕ 19'01	0°-58'-56		1862 Feb 14 00:24	0° Υ	
direct	1853 Nov 22 08:12	10° ✕ 55'59					
				conjunction	1862 Mar 22 04:14	1° Υ 18'10	-1°-20'-29
conjunction	1854 Mar 04 06:32	13° ✕ 24'04	0°-56'-47	minimum elong	1862 Mar 22 04:14	1° Υ 18'10	1°20'29
minimum elong	1854 Mar 04 06:31	13° ✕ 24'04	0°56'48	max. Earth dist.	1862 Mar 23 03:10	1° Υ 20'20	30.86881 AU
max. Earth dist.	1854 Mar 05 01:56	13° ✕ 25'54	30.93621 AU	retrograde	1862 Jul 07 05:13	3° Υ 52'36	
retrograde	1854 Jun 18 19:31	15° ✕ 57'50		opposition	1862 Sep 25 19:29	2° Υ 27'18	-1°-27'-25
opposition	1854 Sep 07 13:14	14° ✕ 33'04	-1°-2'-31	min. Earth dist.	1862 Sep 24 21:45	2° Υ 28'49	28.86656 AU
min. Earth dist.	1854 Sep 06 17:38	14° ✕ 34'25	28.93345 AU	direct	1862 Dec 12 17:18	1° Υ 04'04	
direct	1854 Nov 24 17:33	13° ✕ 10'04					
				conjunction	1863 Mar 24 16:09	3° Υ 32'18	-1°-22'-57
conjunction	1855 Mar 06 18:04	15° ✕ 38'13	-1°00'-6	minimum elong	1863 Mar 24 16:09	3° Υ 32'18	1°22'57
minimum elong	1855 Mar 06 18:04	15° ✕ 38'13	1°00'07	max. Earth dist.	1863 Mar 25 14:28	3° Υ 34'24	30.86301 AU
max. Earth dist.	1855 Mar 07 14:37	15° ✕ 40'10	30.92944 AU	retrograde	1863 Jul 09 18:53	6° Υ 06'48	
retrograde	1855 Jun 21 08:02	18° ✕ 12'08		min. Earth dist.	1863 Sep 27 09:59	4° Υ 43'00	28.86157 AU
min. Earth dist.	1855 Sep 09 06:46	16° ✕ 48'41	28.92633 AU	opposition	1863 Sep 28 08:03	4° Υ 41'28	-1°-29'-59
opposition	1855 Sep 10 02:16	16° ✕ 47'20	-1°-6'00	direct	1863 Dec 15 03:15	3° Υ 18'13	
direct	1855 Nov 27 05:40	15° ✕ 24'21					
				conjunction	1864 Mar 26 04:09	5° Υ 46'29	-1°-25'-17
conjunction	1856 Mar 08 05:31	17° ✕ 52'32	-1°-3'-19	minimum elong	1864 Mar 26 04:08	5° Υ 46'29	1°25'18
minimum elong	1856 Mar 08 05:31	17° ✕ 52'32	1°03'19	max. Earth dist.	1864 Mar 27 03:52	5° Υ 48'44	30.85859 AU
max. Earth dist.	1856 Mar 09 01:34	17° ✕ 54'25	30.92191 AU	retrograde	1864 Jul 11 06:12	8° Υ 21'05	
retrograde	1856 Jun 22 23:14	20° ✕ 26'34		opposition	1864 Sep 29 20:35	6° Υ 55'44	-1°-32'-25
opposition	1856 Sep 11 15:18	19° ✕ 01'43	-1°-9'-24	min. Earth dist.	1864 Sep 28 22:24	6° Υ 57'17	28.85780 AU
min. Earth dist.	1856 Sep 10 19:01	19° ✕ 03'07	28.91834 AU	direct	1864 Dec 16 14:44	5° Υ 32'30	
direct	1856 Nov 28 17:04	17° ✕ 38'43					
				conjunction	1865 Mar 28 16:21	8° Υ 00'49	-1°-27'-30
conjunction	1857 Mar 10 17:16	20° ✕ 06'56	-1°-6'-26	minimum elong	1865 Mar 28 16:21	8° Υ 00'49	1°27'31
minimum elong	1857 Mar 10 17:15	20° ✕ 06'56	1°06'27	max. Earth dist.	1865 Mar 29 15:41	8° Υ 03'01	30.85546 AU
max. Earth dist.	1857 Mar 11 13:49	20° ✕ 08'53	30.91327 AU	retrograde	1865 Jul 13 20:49	10° Υ 35'29	
retrograde	1857 Jun 25 11:42	22° ✕ 41'04		min. Earth dist.	1865 Oct 01 10:00	9° Υ 11'44	28.85515 AU
min. Earth dist.	1857 Sep 13 08:49	21° ✕ 17'30	28.90928 AU	opposition	1865 Oct 02 08:57	9° Υ 10'08	-1°-34'-42
opposition	1857 Sep 14 04:16	21° ✕ 16'09	-1°-12'-41	direct	1865 Dec 19 01:01	7° Υ 46'54	
direct	1857 Dec 01 04:10	19° ✕ 53'07					
				conjunction	1866 Mar 31 04:46	10° Υ 15'18	-1°-29'-34
conjunction	1858 Mar 13 05:03	22° ✕ 21'20	-1°-9'-28	minimum elong	1866 Mar 31 04:45	10° Υ 15'18	1°29'35
minimum elong	1858 Mar 13 05:02	22° ✕ 21'20	1°09'29	max. Earth dist.	1866 Apr 01 04:41	10° Υ 17'34	30.85299 AU
max. Earth dist.	1858 Mar 14 01:46	22° ✕ 23'18	30.90390 AU	retrograde	1866 Jul 16 09:28	12° Υ 50'03	
retrograde	1858 Jun 28 02:25	24° ✕ 55'32		opposition	1866 Oct 04 21:27	11° Υ 24'44	-1°-36'-51
opposition	1858 Sep 16 17:04	23° ✕ 30'32	-1°-15'-52	min. Earth dist.	1866 Oct 03 23:24	11° Υ 26'16	28.85292 AU
min. Earth dist.	1858 Sep 15 20:29	23° ✕ 31'57	28.89962 AU	direct	1866 Dec 21 11:32	10° Υ 01'31	
direct	1858 Dec 03 17:42	22° ✕ 07'27					
				conjunction	1867 Apr 02 17:14	12° Υ 29'59	-1°-31'-31
conjunction	1859 Mar 15 16:41	24° ✕ 35'39	-1°-12'-23	minimum elong	1867 Apr 02 17:14	12° Υ 29'59	1°31'32
minimum elong	1859 Mar 15 16:41	24° ✕ 35'39	1°12'25	max. Earth dist.	1867 Apr 03 17:11	12° Υ 32'15	30.85083 AU
max. Earth dist.	1859 Mar 16 13:19	24° ✕ 37'37	30.89402 AU	retrograde	1867 Jul 19 00:39	15° Υ 04'49	
retrograde	1859 Jun 30 16:14	27° ✕ 09'55		min. Earth dist.	1867 Oct 06 10:57	13° Υ 41'05	28.85065 AU
min. Earth dist.	1859 Sep 18 10:00	25° ✕ 46'12	28.88993 AU	opposition	1867 Oct 07 09:50	13° Υ 39'30	-1°-38'-51
opposition	1859 Sep 19 05:52	25° ✕ 44'50	-1°-18'-56	direct	1867 Dec 24 00:25	12° Υ 16'18	
direct	1859 Dec 06 05:45	24° ✕ 21'42					

conjunction	1868 Apr 04 05:54	14° Υ 44'51	-1°-33'-19	conjunction	1876 Apr 22 13:34	2° ♄ 44'22	-1°-42'-28
minimum elong	1868 Apr 04 05:53	14° Υ 44'51	1°33'20	minimum elong	1876 Apr 22 13:34	2° ♄ 44'22	1°42'30
max. Earth dist.	1868 Apr 05 05:18	14° Υ 47'03	30.84822 AU	max. Earth dist.	1876 Apr 23 12:31	2° ♄ 46'32	30.82067 AU
retrograde	1868 Jul 20 14:46	17° Υ 19'44		retrograde	1876 Aug 07 23:00	5° ♄ 19'17	
opposition	1868 Oct 08 22:23	15° Υ 54'25	-1°-40'-42	opposition	1876 Oct 26 23:06	3° ♄ 53'51	-1°-49'-51
min. Earth dist.	1868 Oct 08 00:46	15° Υ 55'56	28.84780 AU	min. Earth dist.	1876 Oct 26 01:29	3° ♄ 55'22	28.82211 AU
direct	1868 Dec 25 11:56	14° Υ 31'13		direct	1877 Jan 12 08:49	2° ♄ 30'21	
conjunction	1869 Apr 06 18:47	16° Υ 59'50	-1°-34'-59	conjunction	1877 Apr 25 02:46	4° ♄ 59'21	-1°-42'-56
minimum elong	1869 Apr 06 18:47	16° Υ 59'50	1°35'00	minimum elong	1877 Apr 25 02:46	4° ♄ 59'21	1°42'57
max. Earth dist.	1869 Apr 07 18:32	17° Υ 02'04	30.84494 AU	max. Earth dist.	1877 Apr 26 01:23	5° ♄ 01'28	30.82142 AU
retrograde	1869 Jul 23 04:32	19° Υ 34'46		retrograde	1877 Aug 10 12:02	7° ♄ 34'16	
opposition	1869 Oct 11 10:45	18° Υ 09'26	-1°-42'-24	opposition	1877 Oct 29 11:01	6° ♄ 08'50	-1°-50'-15
min. Earth dist.	1869 Oct 10 12:28	18° Υ 11'00	28.84397 AU	min. Earth dist.	1877 Oct 28 14:34	6° ♄ 10'17	28.82346 AU
direct	1869 Dec 28 01:06	16° Υ 46'12		direct	1878 Jan 14 19:42	4° ♄ 45'20	
conjunction	1870 Apr 09 07:39	19° Υ 14'52	-1°-36'-30	conjunction	1878 Apr 27 16:13	7° ♄ 14'26	-1°-43'-13
minimum elong	1870 Apr 09 07:39	19° Υ 14'52	1°36'31	minimum elong	1878 Apr 27 16:12	7° ♄ 14'26	1°43'15
max. Earth dist.	1870 Apr 10 06:08	19° Υ 16'59	30.84064 AU	max. Earth dist.	1878 Apr 28 15:11	7° ♄ 16'35	30.82329 AU
retrograde	1870 Jul 25 18:21	21° Υ 49'49		retrograde	1878 Aug 13 02:09	9° ♄ 49'19	
opposition	1870 Oct 13 23:03	20° Υ 24'28	-1°-43'-57	opposition	1878 Oct 31 22:38	8° ♄ 23'58	-1°-50'-29
min. Earth dist.	1870 Oct 13 01:51	20° Υ 25'56	28.83938 AU	min. Earth dist.	1878 Oct 31 01:32	8° ♄ 25'27	28.82561 AU
direct	1870 Dec 30 12:14	19° Υ 01'12		direct	1879 Jan 17 08:22	7° ♄ 00'28	
conjunction	1871 Apr 11 20:38	21° Υ 29'53	-1°-37'-52	conjunction	1879 Apr 30 05:36	9° ♄ 29'38	-1°-43'-22
minimum elong	1871 Apr 11 20:38	21° Υ 29'53	1°37'53	minimum elong	1879 Apr 30 05:36	9° ♄ 29'38	1°43'22
max. Earth dist.	1871 Apr 12 20:02	21° Υ 32'06	30.83580 AU	max. Earth dist.	1879 May 01 03:22	9° ♄ 31'41	30.82567 AU
retrograde	1871 Jul 28 07:17	24° Υ 04'50		retrograde	1879 Aug 15 16:55	12° ♄ 04'32	
opposition	1871 Oct 16 11:16	22° Υ 39'27	-1°-45'-20	opposition	1879 Nov 03 10:30	10° ♄ 39'13	-1°-50'-32
min. Earth dist.	1871 Oct 15 13:47	22° Υ 40'57	28.83440 AU	min. Earth dist.	1879 Nov 02 14:36	10° ♄ 40'37	28.82813 AU
direct	1872 Jan 02 01:02	21° Υ 16'08		direct	1880 Jan 19 19:47	9° ♄ 15'43	
conjunction	1872 Apr 13 09:22	23° Υ 44'51	-1°-39'-6	conjunction	1880 May 01 19:15	11° ♄ 44'59	-1°-43'-20
minimum elong	1872 Apr 13 09:21	23° Υ 44'51	1°39'07	minimum elong	1880 May 01 19:15	11° ♄ 44'59	1°43'21
max. Earth dist.	1872 Apr 14 07:39	23° Υ 46'57	30.83094 AU	max. Earth dist.	1880 May 02 17:36	11° ♄ 47'05	30.82806 AU
retrograde	1872 Jul 29 20:25	26° Υ 19'48		retrograde	1880 Aug 17 06:38	14° ♄ 19'51	
opposition	1872 Oct 17 23:28	24° Υ 54'22	-1°-46'-34	opposition	1880 Nov 04 22:16	12° ♄ 54'34	-1°-50'-25
min. Earth dist.	1872 Oct 17 02:16	24° Υ 55'51	28.82982 AU	min. Earth dist.	1880 Nov 04 02:32	12° ♄ 55'57	28.83017 AU
direct	1873 Jan 03 11:48	23° Υ 31'00		direct	1881 Jan 21 09:19	11° ♄ 31'04	
conjunction	1873 Apr 15 22:27	25° Υ 59'45	-1°-40'-10	conjunction	1881 May 04 09:02	14° ♄ 00'24	-1°-43'-9
minimum elong	1873 Apr 15 22:27	25° Υ 59'45	1°40'11	minimum elong	1881 May 04 09:02	14° ♄ 00'24	1°43'09
max. Earth dist.	1873 Apr 16 21:41	26° Υ 01'57	30.82659 AU	max. Earth dist.	1881 May 05 05:32	14° ♄ 02'19	30.82974 AU
retrograde	1873 Aug 01 07:13	28° Υ 34'41		retrograde	1881 May 31 11:03	15° ♄	
opposition	1873 Oct 20 11:24	27° Υ 09'14	-1°-47'-38	opposition	1881 Aug 19 20:08	16° ♄ 35'13	
min. Earth dist.	1873 Oct 19 14:28	27° Υ 10'43	28.82593 AU	opposition	1881 Nov 07 09:58	15° ♄ 09'58	-1°-50'-8
direct	1874 Jan 05 23:30	25° Υ 45'50		min. Earth dist.	1881 Nov 06 15:10	15° ♄ 11'17	28.83141 AU
conjunction	1874 Apr 18 11:27	28° Υ 14'37	-1°-41'-6	direct	1881 Nov 13 07:48	15° ♄	
minimum elong	1874 Apr 18 11:27	28° Υ 14'37	1°41'07	direct	1882 Jan 23 20:22	13° ♄ 46'25	
max. Earth dist.	1874 Apr 19 09:52	28° Υ 16'44	30.82330 AU	direct	1882 Apr 01 18:48	15° ♄	
retrograde	1874 Jun 08 15:14	0° ♄		conjunction	1882 May 06 23:01	16° ♄ 15'49	-1°-42'-49
retrograde	1874 Aug 03 21:20	0° ♄ 49'33		minimum elong	1882 May 06 23:01	16° ♄ 15'49	1°42'50
retrograde	1874 Sep 30 22:49	30° ♄		max. Earth dist.	1882 May 07 19:42	16° ♄ 17'45	30.83039 AU
opposition	1874 Oct 22 23:20	29° Υ 24'05	-1°-48'-32	retrograde	1882 Aug 22 08:05	18° ♄ 50'33	
min. Earth dist.	1874 Oct 22 01:51	29° Υ 25'36	28.82330 AU	opposition	1882 Nov 09 21:42	17° ♄ 25'18	-1°-49'-41
direct	1875 Jan 08 09:41	28° Υ 00'37		min. Earth dist.	1882 Nov 09 03:45	17° ♄ 26'34	28.83150 AU
direct	1875 Apr 07 21:48	0° ♄		direct	1883 Jan 26 08:51	16° ♄ 01'43	
conjunction	1875 Apr 21 00:25	0° ♄ 29'29	-1°-41'-52	conjunction	1883 May 09 12:41	18° ♄ 31'08	-1°-42'-19
minimum elong	1875 Apr 21 00:25	0° ♄ 29'29	1°41'53	minimum elong	1883 May 09 12:41	18° ♄ 31'08	1°42'20
max. Earth dist.	1875 Apr 21 23:26	0° ♄ 31'39	30.82120 AU	max. Earth dist.	1883 May 10 07:47	18° ♄ 32'56	30.83019 AU
retrograde	1875 Aug 06 08:48	3° ♄ 04'25		retrograde	1883 Aug 24 22:09	21° ♄ 05'48	
opposition	1875 Oct 25 11:21	1° ♄ 38'56	-1°-49'-17	opposition	1883 Nov 12 09:19	19° ♄ 40'32	-1°-49'-5
min. Earth dist.	1875 Oct 24 14:36	1° ♄ 40'24	28.82194 AU	min. Earth dist.	1883 Nov 11 15:27	19° ♄ 41'48	28.83097 AU
direct	1876 Jan 10 20:03	0° ♄ 15'28		direct	1884 Jan 28 20:00	18° ♄ 16'51	

conjunction	1884 May 11 02:35	20° 8 46'19	-1°-41'-40	direct	1892 Feb 15 19:15	6° II 14'58	
minimum elong	1884 May 11 02:35	20° 8 46'19	1°41'42				
max. Earth dist.	1884 May 11 21:40	20° 8 48'07	30.82943 AU	conjunction	1892 May 29 17:44	8° II 45'01	-1°-31'-3
retrograde	1884 Aug 26 08:42	23° 8 20'53		minimum elong	1892 May 29 17:44	8° II 45'01	1°31'05
opposition	1884 Nov 13 20:48	21° 8 55'36	-1°-48'-18	max. Earth dist.	1892 May 30 08:14	8° II 46'23	30.85256 AU
min. Earth dist.	1884 Nov 13 04:20	21° 8 56'46	28.83016 AU	retrograde	1892 Sep 13 18:01	11° II 18'52	
direct	1885 Jan 30 07:08	20° 8 31'51		opposition	1892 Dec 01 13:57	9° II 53'58	-1°-36'-18
				min. Earth dist.	1892 Dec 01 00:37	9° II 54'54	28.85652 AU
conjunction	1885 May 13 16:29	23° 8 01'21	-1°-40'-52	direct	1893 Feb 17 06:12	8° II 29'58	
minimum elong	1885 May 13 16:29	23° 8 01'21	1°40'53				
max. Earth dist.	1885 May 14 10:47	23° 8 03'04	30.82883 AU	conjunction	1893 Jun 01 08:03	11° II 00'07	-1°-29'-4
retrograde	1885 Aug 28 21:42	25° 8 35'48		minimum elong	1893 Jun 01 08:04	11° II 00'07	1°29'05
opposition	1885 Nov 16 08:06	24° 8 10'31	-1°-47'-22	max. Earth dist.	1893 Jun 01 22:15	11° II 01'27	30.85862 AU
min. Earth dist.	1885 Nov 15 15:15	24° 8 11'43	28.82969 AU	retrograde	1893 Sep 16 04:38	13° II 33'52	
direct	1886 Feb 01 19:42	22° 8 46'41		opposition	1893 Dec 04 01:03	12° II 09'03	-1°-34'-7
				min. Earth dist.	1893 Dec 03 13:25	12° II 09'52	28.86220 AU
conjunction	1886 May 16 06:16	25° 8 16'14	-1°-39'-55	direct	1894 Feb 19 17:21	10° II 45'01	
minimum elong	1886 May 16 06:16	25° 8 16'14	1°39'56				
max. Earth dist.	1886 May 16 23:59	25° 8 17'53	30.82861 AU	conjunction	1894 Jun 03 22:15	13° II 15'15	-1°-26'-57
retrograde	1886 Aug 31 09:22	27° 8 50'35		minimum elong	1894 Jun 03 22:15	13° II 15'15	1°26'58
opposition	1886 Nov 18 19:25	26° 8 25'18	-1°-46'-16	max. Earth dist.	1894 Jun 04 11:01	13° II 16'26	30.86398 AU
min. Earth dist.	1886 Nov 18 03:58	26° 8 26'24	28.82997 AU	retrograde	1894 Sep 18 17:22	15° II 48'52	
direct	1887 Feb 04 06:18	25° 8 01'24		opposition	1894 Dec 06 11:57	14° II 24'07	-1°-31'-47
				min. Earth dist.	1894 Dec 06 00:20	14° II 24'56	28.86705 AU
conjunction	1887 May 18 20:08	27° 8 31'00	-1°-38'-49	direct	1895 Feb 22 05:25	13° II 00'02	
minimum elong	1887 May 18 20:08	27° 8 31'00	1°38'49				
max. Earth dist.	1887 May 19 13:56	27° 8 32'40	30.82952 AU	conjunction	1895 Jun 06 12:30	15° II 30'19	-1°-24'-42
	1887 May 16 04:43	0° II		minimum elong	1895 Jun 06 12:31	15° II 30'20	1°24'43
retrograde	1887 Sep 02 22:41	0° II 05'15		max. Earth dist.	1895 Jun 07 00:13	15° II 31'25	30.86839 AU
	1887 Sep 20 20:11	30° R 8		retrograde	1895 Sep 21 04:45	18° II 03'49	
opposition	1887 Nov 21 06:33	28° 8 40'00	-1°-45'00	opposition	1895 Dec 08 22:56	16° II 39'05	-1°-29'-18
min. Earth dist.	1887 Nov 20 14:27	28° 8 41'08	28.83144 AU	min. Earth dist.	1895 Dec 08 13:14	16° II 39'47	28.87111 AU
direct	1888 Feb 06 19:08	27° 8 16'02		direct	1896 Feb 24 15:12	15° II 14'56	
conjunction	1888 May 20 09:50	29° 8 45'42	-1°-37'-33	conjunction	1896 Jun 08 02:44	17° II 45'16	-1°-22'-20
minimum elong	1888 May 20 09:50	29° 8 45'42	1°37'34	minimum elong	1896 Jun 08 02:45	17° II 45'16	1°22'22
max. Earth dist.	1888 May 21 02:27	29° 8 47'16	30.83167 AU	max. Earth dist.	1896 Jun 08 13:48	17° II 46'18	30.87229 AU
	1888 May 26 18:37	0° II		retrograde	1896 Sep 22 16:43	20° II 18'36	
retrograde	1888 Sep 04 12:20	2° II 19'52		opposition	1896 Dec 10 09:41	18° II 53'54	-1°-26'-42
opposition	1888 Nov 22 17:50	0° II 54'39	-1°-43'-34	min. Earth dist.	1896 Dec 09 23:54	18° II 54'35	28.87466 AU
min. Earth dist.	1888 Nov 22 02:48	0° II 55'42	28.83433 AU	direct	1897 Feb 26 04:31	17° II 29'40	
	1888 Dec 27 17:45	30° R 8					
direct	1889 Feb 08 06:39	29° 8 30'39		conjunction	1897 Jun 10 16:55	20° II 00'02	-1°-19'-51
	1889 Mar 22 01:44	0° II		minimum elong	1897 Jun 10 16:56	20° II 00'02	1°19'51
				max. Earth dist.	1897 Jun 11 02:18	20° II 00'54	30.87579 AU
conjunction	1889 May 22 23:52	2° II 00'25	-1°-36'-9	retrograde	1897 Sep 25 04:41	22° II 33'12	
minimum elong	1889 May 22 23:52	2° II 00'25	1°36'09	opposition	1897 Dec 12 20:23	21° II 08'30	-1°-23'-59
max. Earth dist.	1889 May 23 17:05	2° II 02'01	30.83529 AU	min. Earth dist.	1897 Dec 12 12:09	21° II 09'05	28.87825 AU
retrograde	1889 Sep 07 01:19	4° II 34'29		direct	1898 Feb 28 16:11	19° II 44'11	
opposition	1889 Nov 25 04:48	3° II 09'19	-1°-41'-59				
min. Earth dist.	1889 Nov 24 13:43	3° II 10'23	28.83851 AU	conjunction	1898 Jun 13 07:08	22° II 14'35	-1°-17'-14
direct	1890 Feb 10 20:03	1° II 45'19		minimum elong	1898 Jun 13 07:08	22° II 14'35	1°17'16
				max. Earth dist.	1898 Jun 13 16:43	22° II 15'29	30.87960 AU
conjunction	1890 May 25 13:44	4° II 15'10	-1°-34'-36	retrograde	1898 Sep 27 16:34	24° II 47'34	
minimum elong	1890 May 25 13:44	4° II 15'10	1°34'37	opposition	1898 Dec 15 07:01	23° II 22'54	-1°-21'-8
max. Earth dist.	1890 May 26 05:25	4° II 16'38	30.84022 AU	min. Earth dist.	1898 Dec 14 22:56	23° II 23'28	28.88224 AU
retrograde	1890 Sep 09 14:59	6° II 49'10		direct	1899 Mar 03 05:43	21° II 58'30	
opposition	1890 Nov 27 15:57	5° II 24'05	-1°-40'-15				
min. Earth dist.	1890 Nov 27 01:31	5° II 25'06	28.84403 AU	conjunction	1899 Jun 15 20:57	24° II 28'56	-1°-14'-31
direct	1891 Feb 13 06:48	4° II 00'05		minimum elong	1899 Jun 15 20:58	24° II 28'56	1°14'31
				max. Earth dist.	1899 Jun 16 04:51	24° II 29'40	30.88409 AU
conjunction	1891 May 28 03:39	6° II 30'02	-1°-32'-54	retrograde	1899 Sep 30 05:37	27° II 01'44	
minimum elong	1891 May 28 03:39	6° II 30'02	1°32'54	opposition	1899 Dec 17 17:39	25° II 37'05	-1°-18'-10
max. Earth dist.	1891 May 28 19:56	6° II 31'33	30.84616 AU	min. Earth dist.	1899 Dec 17 10:19	25° II 37'36	28.88728 AU
retrograde	1891 Sep 12 03:40	9° II 03'57		direct	1900 Mar 05 16:54	24° II 12'37	
opposition	1891 Nov 30 03:01	7° II 38'58	-1°-38'-21				
min. Earth dist.	1891 Nov 29 13:23	7° II 39'56	28.85017 AU	conjunction	1900 Jun 18 11:06	26° II 43'05	-1°-11'-41

minimum elong	1900 Jun 18 11:07	26°II43'05	1°11'43	minimum elong	1908 Jul 07 03:32	14°☾35'31	0°45'34
max. Earth dist.	1900 Jun 18 19:30	26°II43'52	30.88969 AU	max. Earth dist.	1908 Jul 07 03:22	14°☾35'30	30.96324 AU
retrograde	1900 Oct 02 17:48	29°II15'43		retrograde	1908 Oct 20 17:12	17°☾07'00	
opposition	1900 Dec 20 04:06	27°II51'06	-1°-15'-5	opposition	1909 Jan 06 15:40	15°☾43'06	0°-46'-44
min. Earth dist.	1900 Dec 19 21:30	27°II51'34	28.89346 AU	min. Earth dist.	1909 Jan 06 15:32	15°☾43'06	28.96721 AU
direct	1901 Mar 08 06:24	26°II26'35		direct	1909 Mar 26 02:12	14°☾18'25	
conjunction	1901 Jun 21 01:06	28°II57'07	-1°-8'-45	conjunction	1909 Jul 09 17:41	16°☾49'31	0°-41'-54
minimum elong	1901 Jun 21 01:06	28°II57'07	1°08'46	minimum elong	1909 Jul 09 17:41	16°☾49'31	0°41'55
max. Earth dist.	1901 Jun 21 07:46	28°II57'44	30.89670 AU	max. Earth dist.	1909 Jul 09 17:33	16°☾49'30	30.97064 AU
	1901 Jul 19 23:57	0°☾		retrograde	1909 Oct 23 05:03	19°☾20'48	
retrograde	1901 Oct 05 06:56	1°☾29'34		opposition	1910 Jan 09 02:04	17°☾56'57	0°-42'-50
opposition	1901 Dec 22 14:35	0°☾05'01	-1°-11'-53	min. Earth dist.	1910 Jan 09 03:04	17°☾56'53	28.97428 AU
min. Earth dist.	1901 Dec 22 07:55	0°☾05'30	28.90119 AU	direct	1910 Mar 28 16:14	16°☾32'14	
	1901 Dec 25 13:30	30°R II		conjunction	1910 Jul 12 07:24	19°☾03'20	0°-38'-14
direct	1902 Mar 10 18:14	28°II40'28		minimum elong	1910 Jul 12 07:24	19°☾03'20	0°38'15
	1902 May 21 13:35	0°☾		max. Earth dist.	1910 Jul 12 05:14	19°☾03'08	30.97769 AU
conjunction	1902 Jun 23 15:03	1°☾11'03	-1°-5'-42	retrograde	1910 Oct 25 17:30	21°☾34'27	
minimum elong	1902 Jun 23 15:04	1°☾11'03	1°05'44	opposition	1911 Jan 11 12:17	20°☾10'38	0°-38'-52
max. Earth dist.	1902 Jun 23 21:56	1°☾11'41	30.90509 AU	min. Earth dist.	1911 Jan 11 13:30	20°☾10'33	28.98135 AU
retrograde	1902 Oct 07 17:36	3°☾43'22		direct	1911 Mar 31 04:41	18°☾45'51	
opposition	1902 Dec 25 01:07	2°☾18'55	-1°-8'-34	conjunction	1911 Jul 14 21:17	21°☾17'00	0°-34'-30
min. Earth dist.	1902 Dec 24 19:45	2°☾19'17	28.91023 AU	minimum elong	1911 Jul 14 21:17	21°☾17'00	0°34'30
direct	1903 Mar 13 05:32	0°☾54'21		max. Earth dist.	1911 Jul 14 19:07	21°☾16'48	30.98482 AU
conjunction	1903 Jun 26 05:01	3°☾25'00	-1°-2'-34	retrograde	1911 Oct 28 04:02	23°☾47'55	
minimum elong	1903 Jun 26 05:01	3°☾25'00	1°02'35	opposition	1912 Jan 13 22:29	22°☾24'09	0°-34'-51
max. Earth dist.	1903 Jun 26 10:44	3°☾25'32	30.91491 AU	min. Earth dist.	1912 Jan 14 01:15	22°☾23'58	28.98871 AU
retrograde	1903 Oct 10 06:37	5°☾57'11		direct	1912 Apr 01 16:37	20°☾59'19	
opposition	1903 Dec 27 11:26	4°☾32'50	-1°-5'-10	conjunction	1912 Jul 16 11:00	23°☾30'29	0°-30'-43
min. Earth dist.	1903 Dec 27 05:52	4°☾33'13	28.92045 AU	minimum elong	1912 Jul 16 11:00	23°☾30'29	0°30'44
direct	1904 Mar 14 17:03	3°☾08'16		max. Earth dist.	1912 Jul 16 07:27	23°☾30'10	30.99260 AU
conjunction	1904 Jun 27 19:06	5°☾39'01	0°-59'-19	retrograde	1912 Oct 29 16:52	26°☾01'13	
minimum elong	1904 Jun 27 19:06	5°☾39'01	0°59'21	opposition	1913 Jan 15 08:36	24°☾37'30	0°-30'-47
max. Earth dist.	1904 Jun 28 00:09	5°☾39'29	30.92542 AU	min. Earth dist.	1913 Jan 15 11:05	24°☾37'20	28.99683 AU
retrograde	1904 Oct 11 17:47	8°☾11'04		direct	1913 Apr 04 04:57	23°☾12'37	
opposition	1904 Dec 28 21:58	6°☾46'50	-1°-1'-39	conjunction	1913 Jul 19 00:41	25°☾43'49	0°-26'-54
min. Earth dist.	1904 Dec 28 18:17	6°☾47'05	28.93107 AU	minimum elong	1913 Jul 19 00:42	25°☾43'49	0°26'54
direct	1905 Mar 17 02:33	5°☾22'16		max. Earth dist.	1913 Jul 18 20:44	25°☾43'27	31.00114 AU
conjunction	1905 Jun 30 09:17	7°☾53'06	0°-56'00	retrograde	1913 Nov 01 03:02	28°☾14'23	
minimum elong	1905 Jun 30 09:17	7°☾53'06	0°56'00	opposition	1914 Jan 17 18:49	26°☾50'44	0°-26'-41
max. Earth dist.	1905 Jun 30 13:30	7°☾53'30	30.93604 AU	min. Earth dist.	1914 Jan 17 22:52	26°☾50'27	29.00602 AU
retrograde	1905 Oct 14 05:22	10°☾25'02		direct	1914 Apr 06 14:48	25°☾25'49	
opposition	1905 Dec 31 08:18	9°☾00'55	0°-58'-2	conjunction	1914 Jul 21 14:18	27°☾57'03	0°-23'-2
min. Earth dist.	1905 Dec 31 04:41	9°☾01'10	28.94137 AU	minimum elong	1914 Jul 21 14:18	27°☾57'03	0°23'03
direct	1906 Mar 19 15:17	7°☾36'20		max. Earth dist.	1914 Jul 21 09:50	27°☾56'38	31.01103 AU
conjunction	1906 Jul 02 23:23	10°☾07'16	0°-52'-35		1914 Sep 23 20:23	0°♁	
minimum elong	1906 Jul 02 23:24	10°☾07'16	0°52'36	retrograde	1914 Nov 03 13:17	0°♁27'26	
max. Earth dist.	1906 Jul 03 01:47	10°☾07'29	30.94599 AU		1914 Dec 14 20:40	30°R ☾	
retrograde	1906 Oct 16 16:57	12°☾39'04		opposition	1915 Jan 20 04:56	29°☾03'53	0°-22'-32
opposition	1907 Jan 02 18:53	11°☾15'01	0°-54'-21	min. Earth dist.	1915 Jan 20 08:33	29°☾03'37	29.01645 AU
min. Earth dist.	1907 Jan 02 16:57	11°☾15'10	28.95097 AU	direct	1915 Apr 09 03:32	27°☾38'57	
direct	1907 Mar 22 01:58	9°☾50'26			1915 Jul 19 13:32	0°♁	
conjunction	1907 Jul 05 13:28	12°☾21'25	0°-49'-5	conjunction	1915 Jul 24 03:43	0°♁10'13	0°-19'-8
minimum elong	1907 Jul 05 13:28	12°☾21'25	0°49'06	minimum elong	1915 Jul 24 03:43	0°♁10'13	0°19'09
max. Earth dist.	1907 Jul 05 15:34	12°☾21'37	30.95513 AU	max. Earth dist.	1915 Jul 23 22:06	0°♁09'42	31.02205 AU
retrograde	1907 Oct 19 04:32	14°☾53'04		retrograde	1915 Nov 05 23:53	2°♁40'28	
opposition	1908 Jan 05 05:22	13°☾29'06	0°-50'-35	opposition	1916 Jan 22 15:10	1°♁17'00	0°-18'-21
min. Earth dist.	1908 Jan 05 04:01	13°☾29'12	28.95947 AU	min. Earth dist.	1916 Jan 22 20:04	1°♁16'40	29.02799 AU
direct	1908 Mar 23 15:01	12°☾04'29			1916 Mar 19 15:27	30°R ☾	
conjunction	1908 Jul 07 03:32	14°☾35'31	0°-45'-32	direct	1916 Apr 10 13:12	29°☾52'04	
					1916 May 02 10:44	0°♁	

conjunction	1916 Jul 25 17:24	2°♏23'24	0°-15'-13	behind sun end	1922 Aug 09 07:49	15°♏42'26	
minimum elong	1916 Jul 25 17:24	2°♏23'24	0°15'14	max. Earth dist.	1922 Aug 08 13:48	15°♏40'48	31.09273 AU
behind sun begin	1916 Jul 25 15:40	2°♏23'15		retrograde	1922 Nov 21 06:47	18°♏11'04	
behind sun end	1916 Jul 25 19:07	2°♏23'34		opposition	1923 Feb 06 14:40	16°♏48'05	0°11'15
max. Earth dist.	1916 Jul 25 11:46	2°♏22'54	31.03396 AU	min. Earth dist.	1923 Feb 07 02:13	16°♏47'16	29.09630 AU
retrograde	1916 Nov 07 10:37	4°♏53'30		direct	1923 Apr 27 02:19	15°♏22'59	
opposition	1917 Jan 24 01:14	3°♏30'10	0°-14'-8				
min. Earth dist.	1917 Jan 24 06:33	3°♏29'47	29.03996 AU	conjunction	1923 Aug 11 15:09	17°♏54'29	0°12'33
direct	1917 Apr 13 01:02	2°♏05'14		minimum elong	1923 Aug 11 15:09	17°♏54'29	0°12'34
				behind sun begin	1923 Aug 11 11:01	17°♏54'07	
conjunction	1917 Jul 28 06:56	4°♏36'38	0°-11'-17	behind sun end	1923 Aug 11 19:17	17°♏54'51	
minimum elong	1917 Jul 28 06:56	4°♏36'37	0°11'17	max. Earth dist.	1923 Aug 11 02:07	17°♏53'17	31.09962 AU
behind sun begin	1917 Jul 28 02:10	4°♏36'12		retrograde	1923 Nov 23 16:52	20°♏23'26	
behind sun end	1917 Jul 28 11:42	4°♏37'03		opposition	1924 Feb 09 00:44	19°♏00'29	0°15'27
max. Earth dist.	1917 Jul 27 23:24	4°♏35'57	31.04598 AU	min. Earth dist.	1924 Feb 09 12:07	18°♏59'41	29.10302 AU
retrograde	1917 Nov 09 22:27	7°♏06'36		direct	1924 Apr 28 15:25	17°♏35'21	
opposition	1918 Jan 26 11:29	5°♏43'21	0°-9'-55				
min. Earth dist.	1918 Jan 26 17:48	5°♏42'54	29.05190 AU	conjunction	1924 Aug 13 04:09	20°♏06'50	0°16'28
direct	1918 Apr 15 11:59	4°♏18'26		minimum elong	1924 Aug 13 04:09	20°♏06'50	0°16'27
				max. Earth dist.	1924 Aug 12 13:55	20°♏05'31	31.10634 AU
conjunction	1918 Jul 30 20:26	6°♏49'52	0°-7'-20	retrograde	1924 Nov 25 02:48	22°♏35'37	
minimum elong	1918 Jul 30 20:27	6°♏49'52	0°07'21	opposition	1925 Feb 10 10:51	21°♏12'42	0°19'37
behind sun begin	1918 Jul 30 14:25	6°♏49'20		min. Earth dist.	1925 Feb 10 23:27	21°♏11'49	29.11005 AU
behind sun end	1918 Jul 31 02:28	6°♏50'24		direct	1925 May 01 01:21	19°♏47'30	
max. Earth dist.	1918 Jul 30 13:03	6°♏49'12	31.05751 AU				
retrograde	1918 Nov 12 09:18	9°♏19'42		conjunction	1925 Aug 15 17:03	22°♏18'59	0°20'20
opposition	1919 Jan 28 21:48	7°♏56'32	0°-5'-40	minimum elong	1925 Aug 15 17:03	22°♏18'59	0°20'21
min. Earth dist.	1919 Jan 29 05:21	7°♏56'00	29.06294 AU	max. Earth dist.	1925 Aug 15 03:03	22°♏17'42	31.11365 AU
direct	1919 Apr 18 01:28	6°♏31'36		retrograde	1925 Nov 27 12:22	24°♏47'37	
				opposition	1926 Feb 12 21:01	23°♏24'45	0°23'45
conjunction	1919 Aug 02 09:54	9°♏03'05	0°-3'-22	min. Earth dist.	1926 Feb 13 09:40	23°♏23'52	29.11773 AU
minimum elong	1919 Aug 02 09:54	9°♏03'05	0°03'23	direct	1926 May 03 13:12	21°♏59'32	
behind sun begin	1919 Aug 02 03:21	9°♏02'30					
behind sun end	1919 Aug 02 16:27	9°♏03'39		conjunction	1926 Aug 18 05:33	24°♏31'00	0°24'11
max. Earth dist.	1919 Aug 02 00:15	9°♏02'12	31.06805 AU	minimum elong	1926 Aug 18 05:33	24°♏31'00	0°24'11
retrograde	1919 Nov 14 21:39	11°♏32'45		max. Earth dist.	1926 Aug 17 14:12	24°♏29'35	31.12185 AU
opposition	1920 Jan 31 07:56	10°♏09'38	0°-1'-25	retrograde	1926 Nov 29 23:02	26°♏59'31	
min. Earth dist.	1920 Jan 31 15:52	10°♏09'05	29.07294 AU	opposition	1927 Feb 15 07:10	25°♏36'41	0°27'51
direct	1920 Apr 19 13:37	8°♏44'41		min. Earth dist.	1927 Feb 15 20:09	25°♏35'47	29.12662 AU
asc. node	1920 Jun 03 18:56	9°♏17'28		direct	1927 May 05 23:55	24°♏11'28	
conjunction	1920 Aug 03 23:30	11°♏16'11	0°00'41	conjunction	1927 Aug 20 18:18	26°♏42'58	0°28'00
minimum elong	1920 Aug 03 23:31	11°♏16'11	0°00'41	minimum elong	1927 Aug 20 18:18	26°♏42'58	0°28'00
behind sun begin	1920 Aug 03 16:57	11°♏15'37		max. Earth dist.	1927 Aug 20 03:42	26°♏41'37	31.13128 AU
behind sun end	1920 Aug 04 06:06	11°♏16'46		retrograde	1927 Dec 02 08:53	29°♏11'21	
max. Earth dist.	1920 Aug 03 13:33	11°♏15'17	31.07733 AU	opposition	1928 Feb 17 17:14	27°♏48'36	0°31'54
retrograde	1920 Nov 16 08:24	13°♏45'41		min. Earth dist.	1928 Feb 18 06:59	27°♏47'38	29.13657 AU
opposition	1921 Feb 01 18:17	12°♏22'38	0°02'48	direct	1928 May 07 12:31	26°♏23'24	
min. Earth dist.	1921 Feb 02 04:03	12°♏21'57	29.08161 AU				
direct	1921 Apr 22 02:07	10°♏57'39		conjunction	1928 Aug 22 06:53	28°♏54'56	0°31'46
				minimum elong	1928 Aug 22 06:53	28°♏54'56	0°31'46
conjunction	1921 Aug 06 12:49	13°♏29'09	0°04'42	max. Earth dist.	1928 Aug 21 14:42	28°♏53'26	31.14177 AU
minimum elong	1921 Aug 06 12:49	13°♏29'09	0°04'42		1928 Sep 21 12:02	0°♐	
behind sun begin	1921 Aug 06 06:23	13°♏28'35		retrograde	1928 Dec 03 20:48	1°♐23'14	
behind sun end	1921 Aug 06 19:16	13°♏29'43		opposition	1929 Feb 19 03:20	0°♐00'34	0°35'54
max. Earth dist.	1921 Aug 06 01:06	13°♏28'05	31.08551 AU		1929 Feb 19 11:27	30°♐♏	
	1921 Sep 19 06:36	15°♏		min. Earth dist.	1929 Feb 19 16:52	29°♏59'37	29.14745 AU
retrograde	1921 Nov 18 20:57	15°♏58'28		direct	1929 May 09 23:42	28°♏35'23	
	1922 Jan 20 10:09	15°♐♏			1929 Jul 24 15:01	0°♐	
opposition	1922 Feb 04 04:25	14°♏35'27	0°07'02				
min. Earth dist.	1922 Feb 04 14:10	14°♏34'46	29.08926 AU	conjunction	1929 Aug 24 19:28	1°♐06'58	0°35'30
direct	1922 Apr 24 15:22	13°♏10'25		minimum elong	1929 Aug 24 19:28	1°♐06'58	0°35'30
	1922 Jul 20 23:59	15°♏		max. Earth dist.	1929 Aug 24 03:42	1°♐05'31	31.15274 AU
conjunction	1922 Aug 09 02:07	15°♏41'55	0°08'38	retrograde	1929 Dec 06 07:27	3°♐35'11	
minimum elong	1922 Aug 09 02:07	15°♏41'55	0°08'38	opposition	1930 Feb 21 13:39	2°♐12'37	0°39'51
behind sun begin	1922 Aug 08 20:25	15°♏41'25		min. Earth dist.	1930 Feb 22 04:39	2°♐11'34	29.15850 AU
				direct	1930 May 12 11:55	0°♐47'29	

conjunction	1930 Aug 27 07:56	3° \mathring{M} 19'06	0°39'10	retrograde	1938 Dec 26 02:27	23° \mathring{M} 20'12	
minimum elong	1930 Aug 27 07:56	3° \mathring{M} 19'06	0°39'10	opposition	1939 Mar 13 10:45	21° \mathring{M} 57'55	1°12'03
max. Earth dist.	1930 Aug 26 14:47	3° \mathring{M} 17'31	31.16371 AU	min. Earth dist.	1939 Mar 14 06:31	21° \mathring{M} 56'32	29.22517 AU
retrograde	1930 Dec 08 20:17	5° \mathring{M} 47'12		direct	1939 Jun 01 22:38	20° \mathring{M} 32'39	
opposition	1931 Feb 23 23:47	4° \mathring{M} 24'44	0°43'45				
min. Earth dist.	1931 Feb 24 14:32	4° \mathring{M} 23'42	29.16922 AU	conjunction	1939 Sep 16 20:34	23° \mathring{M} 04'00	1°08'56
direct	1931 May 15 01:10	2° \mathring{M} 59'37		minimum elong	1939 Sep 16 20:33	23° \mathring{M} 04'00	1°08'56
				max. Earth dist.	1939 Sep 15 22:52	23° \mathring{M} 01'59	31.22834 AU
conjunction	1931 Aug 29 20:28	5° \mathring{M} 31'16	0°42'47	retrograde	1939 Dec 28 14:15	25° \mathring{M} 31'02	
minimum elong	1931 Aug 29 20:28	5° \mathring{M} 31'16	0°42'47	opposition	1940 Mar 14 21:08	24° \mathring{M} 08'48	1°15'09
max. Earth dist.	1931 Aug 29 02:54	5° \mathring{M} 29'39	31.17390 AU	min. Earth dist.	1940 Mar 15 15:57	24° \mathring{M} 07'29	29.23304 AU
retrograde	1931 Dec 11 06:19	7° \mathring{M} 59'17		direct	1940 Jun 03 11:47	22° \mathring{M} 43'33	
opposition	1932 Feb 26 10:13	6° \mathring{M} 36'52	0°47'35	max. Earth dist.	1940 Sep 17 10:44	25° \mathring{M} 12'55	31.23665 AU
min. Earth dist.	1932 Feb 27 02:44	6° \mathring{M} 35'43	29.17899 AU				
direct	1932 May 16 12:32	5° \mathring{M} 11'47		conjunction	1940 Sep 18 08:07	25° \mathring{M} 14'54	1°11'48
				minimum elong	1940 Sep 18 08:06	25° \mathring{M} 14'54	1°11'48
conjunction	1932 Aug 31 08:58	7° \mathring{M} 43'25	0°46'20	retrograde	1940 Dec 30 00:05	27° \mathring{M} 41'52	
minimum elong	1932 Aug 31 08:58	7° \mathring{M} 43'25	0°46'20	opposition	1941 Mar 17 07:40	26° \mathring{M} 19'41	1°18'09
max. Earth dist.	1932 Aug 30 14:36	7° \mathring{M} 41'43	31.18306 AU	min. Earth dist.	1941 Mar 18 03:33	26° \mathring{M} 18'18	29.24191 AU
retrograde	1932 Dec 12 16:30	10° \mathring{M} 11'18		direct	1941 Jun 05 22:54	24° \mathring{M} 54'29	
opposition	1933 Feb 27 20:30	8° \mathring{M} 48'58	0°51'20				
min. Earth dist.	1933 Feb 28 12:55	8° \mathring{M} 47'49	29.18749 AU	conjunction	1941 Sep 20 19:33	27° \mathring{M} 25'49	1°14'33
direct	1933 May 19 01:36	7° \mathring{M} 23'52		minimum elong	1941 Sep 20 19:32	27° \mathring{M} 25'49	1°14'33
				max. Earth dist.	1941 Sep 19 22:12	27° \mathring{M} 23'51	31.24590 AU
conjunction	1933 Sep 02 21:21	9° \mathring{M} 55'30	0°49'49	retrograde	1942 Jan 01 10:32	29° \mathring{M} 52'45	
minimum elong	1933 Sep 02 21:21	9° \mathring{M} 55'30	0°49'49	opposition	1942 Mar 19 18:12	28° \mathring{M} 30'38	1°21'03
max. Earth dist.	1933 Sep 02 01:45	9° \mathring{M} 53'41	31.19090 AU	min. Earth dist.	1942 Mar 20 13:26	28° \mathring{M} 29'18	29.25129 AU
retrograde	1933 Dec 15 02:59	12° \mathring{M} 23'16		direct	1942 Jun 08 11:44	27° \mathring{M} 05'30	
opposition	1934 Mar 02 06:59	11° \mathring{M} 00'57	0°55'01	max. Earth dist.	1942 Sep 22 08:51	29° \mathring{M} 34'48	31.25525 AU
min. Earth dist.	1934 Mar 03 00:36	10° \mathring{M} 59'43	29.19491 AU				
direct	1934 May 21 11:52	9° \mathring{M} 35'50		conjunction	1942 Sep 23 06:49	29° \mathring{M} 36'51	1°17'12
				minimum elong	1942 Sep 23 06:48	29° \mathring{M} 36'51	1°17'12
conjunction	1934 Sep 05 09:30	12° \mathring{M} 07'26	0°53'13		1942 Oct 03 16:57	0° \mathring{M}	
minimum elong	1934 Sep 05 09:30	12° \mathring{M} 07'26	0°53'13	retrograde	1943 Jan 03 21:21	2° \mathring{M} 03'44	
max. Earth dist.	1934 Sep 04 13:58	12° \mathring{M} 05'38	31.19776 AU	opposition	1943 Mar 22 04:51	0° \mathring{M} 41'42	1°23'49
retrograde	1934 Dec 17 11:48	14° \mathring{M} 35'04		min. Earth dist.	1943 Mar 23 00:54	0° \mathring{M} 40'19	29.26063 AU
opposition	1935 Mar 04 17:21	13° \mathring{M} 12'46	0°58'36		1943 Apr 17 11:01	30° \mathring{R} \mathring{M}	
min. Earth dist.	1935 Mar 05 11:21	13° \mathring{M} 11'31	29.20124 AU	direct	1943 Jun 10 22:05	29° \mathring{M} 16'38	
direct	1935 May 24 00:15	11° \mathring{M} 47'38			1943 Aug 02 19:05	0° \mathring{M}	
conjunction	1935 Sep 07 21:35	14° \mathring{M} 19'11	0°56'32	conjunction	1943 Sep 25 18:16	1° \mathring{M} 47'58	1°19'44
minimum elong	1935 Sep 07 21:35	14° \mathring{M} 19'11	0°56'32	minimum elong	1943 Sep 25 18:16	1° \mathring{M} 47'58	1°19'44
max. Earth dist.	1935 Sep 07 00:27	14° \mathring{M} 17'13	31.20370 AU	max. Earth dist.	1943 Sep 24 20:40	1° \mathring{M} 45'58	31.26420 AU
retrograde	1935 Dec 19 21:24	16° \mathring{M} 46'40		retrograde	1944 Jan 06 06:23	4° \mathring{M} 14'50	
opposition	1936 Mar 06 03:34	15° \mathring{M} 24'23	1°02'06	opposition	1944 Mar 23 15:29	2° \mathring{M} 52'52	1°26'28
min. Earth dist.	1936 Mar 06 22:05	15° \mathring{M} 23'06	29.20701 AU	min. Earth dist.	1944 Mar 24 11:49	2° \mathring{M} 51'27	29.26908 AU
direct	1936 May 25 11:08	13° \mathring{M} 59'12		direct	1944 Jun 12 10:25	1° \mathring{M} 27'51	
				max. Earth dist.	1944 Sep 26 06:37	3° \mathring{M} 57'03	31.27210 AU
conjunction	1936 Sep 09 09:41	16° \mathring{M} 30'42	0°59'46				
minimum elong	1936 Sep 09 09:41	16° \mathring{M} 30'42	0°59'46	conjunction	1944 Sep 27 05:37	3° \mathring{M} 59'11	1°22'09
max. Earth dist.	1936 Sep 08 13:15	16° \mathring{M} 28'48	31.20923 AU	minimum elong	1944 Sep 27 05:36	3° \mathring{M} 59'11	1°22'09
retrograde	1936 Dec 21 05:56	18° \mathring{M} 58'04		retrograde	1945 Jan 07 16:34	6° \mathring{M} 26'00	
opposition	1937 Mar 08 14:01	17° \mathring{M} 35'46	1°05'31	opposition	1945 Mar 26 02:20	5° \mathring{M} 04'06	1°28'59
min. Earth dist.	1937 Mar 09 09:22	17° \mathring{M} 34'25	29.21248 AU	min. Earth dist.	1945 Mar 26 22:55	5° \mathring{M} 02'40	29.27650 AU
direct	1937 May 27 23:14	16° \mathring{M} 10'33		direct	1945 Jun 14 20:50	3° \mathring{M} 39'07	
conjunction	1937 Sep 11 21:18	18° \mathring{M} 41'59	1°02'55	conjunction	1945 Sep 29 16:54	6° \mathring{M} 10'26	1°24'27
minimum elong	1937 Sep 11 21:18	18° \mathring{M} 41'59	1°02'55	minimum elong	1945 Sep 29 16:53	6° \mathring{M} 10'26	1°24'27
max. Earth dist.	1937 Sep 10 23:35	18° \mathring{M} 39'58	31.21481 AU	max. Earth dist.	1945 Sep 28 18:40	6° \mathring{M} 08'22	31.27874 AU
retrograde	1937 Dec 23 16:58	21° \mathring{M} 09'13		retrograde	1946 Jan 10 01:15	8° \mathring{M} 37'13	
opposition	1938 Mar 11 00:21	19° \mathring{M} 46'56	1°08'50	opposition	1946 Mar 28 13:18	7° \mathring{M} 15'20	1°31'22
min. Earth dist.	1938 Mar 11 19:06	19° \mathring{M} 45'38	29.21841 AU	min. Earth dist.	1946 Mar 29 10:47	7° \mathring{M} 13'52	29.28245 AU
direct	1938 May 30 10:13	18° \mathring{M} 21'40		direct	1946 Jun 17 08:19	5° \mathring{M} 50'24	
				max. Earth dist.	1946 Oct 01 04:23	8° \mathring{M} 19'28	31.28402 AU
conjunction	1938 Sep 14 09:02	20° \mathring{M} 53'04	1°05'59				
minimum elong	1938 Sep 14 09:02	20° \mathring{M} 53'04	1°05'59	conjunction	1946 Oct 02 04:03	8° \mathring{M} 21'40	1°26'38
max. Earth dist.	1938 Sep 13 12:07	20° \mathring{M} 51'07	31.22100 AU	minimum elong	1946 Oct 02 04:02	8° \mathring{M} 21'40	1°26'38

retrograde	1947 Jan 12 12:25	10° 4 48'25		direct	1955 Jul 07 19:39	25° 4 27'53	
opposition	1947 Mar 31 00:01	9° 4 26'33	1°33'38	max. Earth dist.	1955 Oct 21 05:24	27° 4 56'34	31.31662 AU
min. Earth dist.	1947 Mar 31 21:03	9° 4 25'06	29.28713 AU				
direct	1947 Jun 19 18:47	8° 4 01'37		conjunction	1955 Oct 22 03:58	27° 4 58'40	1°40'18
				minimum elong	1955 Oct 22 03:58	27° 4 58'40	1°40'18
conjunction	1947 Oct 04 15:18	10° 4 32'51	1°28'41		1955 Dec 24 15:17	0° 4 00'00	
minimum elong	1947 Oct 04 15:18	10° 4 32'51	1°28'41	retrograde	1956 Feb 01 06:32	0° 4 02'51	
max. Earth dist.	1947 Oct 03 16:08	10° 4 30'42	31.28797 AU		1956 Mar 12 01:59	30° 4 00'00	
retrograde	1948 Jan 14 22:02	12° 4 59'33		opposition	1956 Apr 19 03:31	29° 4 03'23	1°47'35
opposition	1948 Apr 01 11:02	11° 4 37'41	1°35'46	min. Earth dist.	1956 Apr 19 23:53	29° 4 02'00	29.31983 AU
min. Earth dist.	1948 Apr 02 09:20	11° 4 36'09	29.29053 AU	direct	1956 Jul 09 06:09	27° 4 38'41	
direct	1948 Jun 21 07:28	10° 4 12'45			1956 Oct 19 09:25	0° 4 00'00	
max. Earth dist.	1948 Oct 05 02:15	12° 4 41'41	31.29092 AU				
				conjunction	1956 Oct 23 14:21	0° 4 09'26	1°41'07
conjunction	1948 Oct 06 02:12	12° 4 43'55	1°30'37	minimum elong	1956 Oct 23 14:21	0° 4 09'26	1°41'07
minimum elong	1948 Oct 06 02:12	12° 4 43'55	1°30'37	max. Earth dist.	1956 Oct 22 16:40	0° 4 07'24	31.32044 AU
retrograde	1949 Jan 16 09:36	15° 4 10'33		retrograde	1957 Feb 02 15:51	2° 4 00'00	
opposition	1949 Apr 03 21:54	13° 4 48'40	1°37'45	opposition	1957 Apr 21 15:06	1° 4 00'00	1°48'23
min. Earth dist.	1949 Apr 04 19:22	13° 4 47'12	29.29310 AU	min. Earth dist.	1957 Apr 22 12:26	1° 4 00'00	29.32314 AU
direct	1949 Jun 23 20:46	12° 4 23'44			1957 Jun 15 20:16	30° 4 00'00	
				direct	1957 Jul 11 17:50	29° 4 49'32	
conjunction	1949 Oct 08 13:05	14° 4 54'50	1°32'24		1957 Aug 06 08:17	0° 4 00'00	
minimum elong	1949 Oct 08 13:05	14° 4 54'50	1°32'25	max. Earth dist.	1957 Oct 25 02:25	2° 4 00'00	31.32317 AU
max. Earth dist.	1949 Oct 07 13:27	14° 4 52'38	31.29322 AU				
retrograde	1950 Jan 18 19:19	17° 4 21'25		conjunction	1957 Oct 26 00:39	2° 4 00'00	1°41'48
opposition	1950 Apr 06 08:56	15° 4 59'31	1°39'36	minimum elong	1957 Oct 26 00:39	2° 4 00'00	1°41'47
min. Earth dist.	1950 Apr 07 07:22	15° 4 57'59	29.29548 AU	retrograde	1958 Feb 05 03:15	4° 4 00'00	
direct	1950 Jun 26 08:04	14° 4 34'34		opposition	1958 Apr 24 02:31	3° 4 00'00	1°49'01
				min. Earth dist.	1958 Apr 24 22:52	3° 4 00'00	29.32518 AU
conjunction	1950 Oct 10 23:41	17° 4 05'35	1°34'04	direct	1958 Jul 14 05:52	2° 4 00'00	
minimum elong	1950 Oct 10 23:40	17° 4 05'35	1°34'04				
max. Earth dist.	1950 Oct 10 00:25	17° 4 03'26	31.29567 AU	conjunction	1958 Oct 28 10:55	4° 4 00'00	1°42'19
retrograde	1951 Jan 21 05:28	19° 4 32'07		minimum elong	1958 Oct 28 10:55	4° 4 00'00	1°42'19
opposition	1951 Apr 08 19:52	18° 4 10'13	1°41'18	max. Earth dist.	1958 Oct 27 12:51	4° 4 00'00	31.32440 AU
min. Earth dist.	1951 Apr 09 17:19	18° 4 08'44	29.29808 AU	retrograde	1959 Feb 07 13:36	6° 4 00'00	
direct	1951 Jun 28 21:51	16° 4 45'16		opposition	1959 Apr 26 14:09	5° 4 00'00	1°49'31
max. Earth dist.	1951 Oct 12 10:44	19° 4 14'02	31.29854 AU	min. Earth dist.	1959 Apr 27 11:30	5° 4 00'00	29.32572 AU
				direct	1959 Jul 16 16:51	4° 4 00'00	
conjunction	1951 Oct 13 10:16	19° 4 16'13	1°35'36				
minimum elong	1951 Oct 13 10:16	19° 4 16'13	1°35'35	conjunction	1959 Oct 30 21:10	6° 4 00'00	1°42'42
retrograde	1952 Jan 23 16:29	21° 4 42'43		minimum elong	1959 Oct 30 21:10	6° 4 00'00	1°42'42
opposition	1952 Apr 10 06:51	20° 4 20'48	1°42'51	max. Earth dist.	1959 Oct 29 23:23	6° 4 00'00	31.32422 AU
min. Earth dist.	1952 Apr 11 04:28	20° 4 19'19	29.30149 AU	retrograde	1960 Feb 10 00:07	9° 4 00'00	
direct	1952 Jun 30 09:24	18° 4 55'52		opposition	1960 Apr 28 01:38	7° 4 00'00	1°49'51
				min. Earth dist.	1960 Apr 28 22:13	7° 4 00'00	29.32472 AU
conjunction	1952 Oct 14 20:53	21° 4 26'47	1°36'59	direct	1960 Jul 18 06:55	6° 4 00'00	
minimum elong	1952 Oct 14 20:52	21° 4 26'47	1°36'59	max. Earth dist.	1960 Oct 31 09:02	8° 4 00'00	31.32260 AU
max. Earth dist.	1952 Oct 13 22:27	21° 4 24'42	31.30239 AU				
retrograde	1953 Jan 25 00:57	23° 4 53'16		conjunction	1960 Nov 01 07:18	8° 4 00'00	1°42'56
opposition	1953 Apr 12 18:00	22° 4 31'22	1°44'16	minimum elong	1960 Nov 01 07:18	8° 4 00'00	1°42'57
min. Earth dist.	1953 Apr 13 15:10	22° 4 29'55	29.30568 AU	retrograde	1961 Feb 11 11:33	11° 4 00'00	
direct	1953 Jul 02 22:13	21° 4 06'29		opposition	1961 Apr 30 13:21	9° 4 00'00	1°50'01
max. Earth dist.	1953 Oct 16 08:06	23° 4 35'12	31.30697 AU	min. Earth dist.	1961 May 01 10:09	9° 4 00'00	29.32267 AU
				direct	1961 Jul 20 18:48	8° 4 00'00	
conjunction	1953 Oct 17 07:08	23° 4 37'21	1°38'14				
minimum elong	1953 Oct 17 07:08	23° 4 37'21	1°38'14	conjunction	1961 Nov 03 17:14	11° 4 00'00	1°43'02
retrograde	1954 Jan 27 10:50	26° 4 03'50		minimum elong	1961 Nov 03 17:14	11° 4 00'00	1°43'02
opposition	1954 Apr 15 05:07	24° 4 41'58	1°45'31	max. Earth dist.	1961 Nov 02 20:10	11° 4 00'00	31.32015 AU
min. Earth dist.	1954 Apr 16 01:50	24° 4 40'33	29.31058 AU	retrograde	1962 Feb 13 20:07	13° 4 00'00	
direct	1954 Jul 05 08:34	23° 4 17'09		opposition	1962 May 03 01:01	12° 4 00'00	1°50'03
				min. Earth dist.	1962 May 03 21:27	12° 4 00'00	29.31984 AU
conjunction	1954 Oct 19 17:38	25° 4 47'59	1°39'20	direct	1962 Jul 23 08:12	10° 4 00'00	
minimum elong	1954 Oct 19 17:38	25° 4 47'59	1°39'21	max. Earth dist.	1962 Nov 05 05:25	13° 4 00'00	31.31726 AU
max. Earth dist.	1954 Oct 18 19:58	25° 4 45'57	31.31192 AU				
retrograde	1955 Jan 29 19:19	28° 4 14'28		conjunction	1962 Nov 06 03:02	13° 4 00'00	1°42'59
opposition	1955 Apr 17 16:16	26° 4 52'38	1°46'38	minimum elong	1962 Nov 06 03:02	13° 4 00'00	1°42'59
min. Earth dist.	1955 Apr 18 13:31	26° 4 51'11	29.31545 AU		1962 Dec 29 02:20	15° 4 00'00	

retrograde	1963 Feb 16 06:05	15° M 39'54		minimum elong	1970 Nov 23 08:07	0° Δ 37'11	1°37'18
	1963 Apr 08 11:56	15° R M		max. Earth dist.	1970 Nov 22 16:16	0° Δ 35'41	31.30918 AU
opposition	1963 May 05 12:29	14° M 17'56	1°49'55	retrograde	1971 Mar 05 18:07	3° Δ 04'24	
min. Earth dist.	1963 May 06 08:14	14° M 16'35	29.31708 AU	opposition	1971 May 23 11:49	1° Δ 42'23	1°43'14
direct	1963 Jul 25 19:14	12° M 53'20		min. Earth dist.	1971 May 24 03:34	1° Δ 41'19	29.30865 AU
	1963 Oct 29 00:20	15° M		direct	1971 Aug 12 15:14	0° Δ 18'14	
conjunction	1963 Nov 08 12:56	15° M 23'34	1°42'47	conjunction	1971 Nov 25 17:43	2° Δ 48'04	1°35'57
minimum elong	1963 Nov 08 12:56	15° M 23'34	1°42'46	minimum elong	1971 Nov 25 17:43	2° Δ 48'04	1°35'56
max. Earth dist.	1963 Nov 07 17:01	15° M 21'42	31.31466 AU	max. Earth dist.	1971 Nov 25 01:09	2° Δ 46'30	31.30588 AU
retrograde	1964 Feb 18 14:29	17° M 50'12		retrograde	1972 Mar 07 05:19	5° Δ 15'21	
opposition	1964 May 07 00:18	16° M 28'12	1°49'37	opposition	1972 May 25 00:06	3° Δ 53'18	1°41'43
min. Earth dist.	1964 May 07 20:00	16° M 26'52	29.31479 AU	min. Earth dist.	1972 May 25 15:11	3° Δ 52'16	29.30469 AU
direct	1964 Jul 27 07:02	15° M 03'38		direct	1972 Aug 14 03:09	2° Δ 29'10	
conjunction	1964 Nov 09 22:28	17° M 33'47	1°42'26	conjunction	1972 Nov 27 03:16	4° Δ 58'55	1°34'27
minimum elong	1964 Nov 09 22:28	17° M 33'47	1°42'26	minimum elong	1972 Nov 27 03:17	4° Δ 58'55	1°34'28
max. Earth dist.	1964 Nov 09 02:22	17° M 31'54	31.31288 AU	max. Earth dist.	1972 Nov 26 12:13	4° Δ 57'30	31.30122 AU
retrograde	1965 Feb 20 01:23	20° M 00'29		retrograde	1973 Mar 09 14:32	7° Δ 26'16	
opposition	1965 May 09 12:01	18° M 38'28	1°49'11	opposition	1973 May 27 12:31	6° Δ 04'09	1°40'03
min. Earth dist.	1965 May 10 06:03	18° M 37'15	29.31350 AU	min. Earth dist.	1973 May 28 03:48	6° Δ 03'07	29.29935 AU
direct	1965 Jul 29 17:41	17° M 13'57		direct	1973 Aug 16 16:06	4° Δ 40'02	
conjunction	1965 Nov 12 08:12	19° M 44'03	1°41'57	conjunction	1973 Nov 29 12:42	7° Δ 09'40	1°32'50
minimum elong	1965 Nov 12 08:12	19° M 44'03	1°41'57	minimum elong	1973 Nov 29 12:42	7° Δ 09'40	1°32'50
max. Earth dist.	1965 Nov 11 13:32	19° M 42'18	31.31203 AU	max. Earth dist.	1973 Nov 28 21:18	7° Δ 08'13	31.29550 AU
retrograde	1966 Feb 22 10:42	22° M 10'49		retrograde	1974 Mar 12 01:20	9° Δ 37'05	
opposition	1966 May 11 23:49	20° M 48'48	1°48'34	opposition	1974 May 30 00:40	8° Δ 14'53	1°38'15
min. Earth dist.	1966 May 12 18:11	20° M 47'33	29.31308 AU	min. Earth dist.	1974 May 30 14:30	8° Δ 13'57	29.29320 AU
direct	1966 Aug 01 04:30	19° M 24'21		direct	1974 Aug 19 03:38	6° Δ 50'46	
conjunction	1966 Nov 14 17:43	21° M 54'24	1°41'18	conjunction	1974 Dec 01 22:08	9° Δ 20'17	1°31'05
minimum elong	1966 Nov 14 17:43	21° M 54'24	1°41'19	minimum elong	1974 Dec 01 22:08	9° Δ 20'17	1°31'05
max. Earth dist.	1966 Nov 13 23:19	21° M 52'41	31.31203 AU	max. Earth dist.	1974 Dec 01 07:57	9° Δ 18'57	31.28905 AU
retrograde	1967 Feb 24 22:06	24° M 21'16		retrograde	1975 Mar 14 10:02	11° Δ 47'46	
opposition	1967 May 14 11:34	22° M 59'16	1°47'49	opposition	1975 Jun 01 13:03	10° Δ 25'29	1°36'19
min. Earth dist.	1967 May 15 04:21	22° M 58'07	29.31313 AU	min. Earth dist.	1975 Jun 02 03:12	10° Δ 24'31	29.28665 AU
direct	1967 Aug 03 15:20	21° M 34'52		direct	1975 Aug 21 14:53	9° Δ 01'21	
max. Earth dist.	1967 Nov 16 09:33	24° M 03'14	31.31209 AU	conjunction	1975 Dec 04 07:20	11° Δ 30'46	1°29'12
conjunction	1967 Nov 17 03:19	24° M 04'54	1°40'31	minimum elong	1975 Dec 04 07:21	11° Δ 30'46	1°29'12
minimum elong	1967 Nov 17 03:19	24° M 04'54	1°40'31	max. Earth dist.	1975 Dec 03 17:46	11° Δ 29'29	31.28267 AU
retrograde	1968 Feb 27 08:55	26° M 31'52		retrograde	1976 Mar 15 20:39	13° Δ 58'18	
opposition	1968 May 15 23:33	25° M 09'52	1°46'54	opposition	1976 Jun 03 01:20	12° Δ 35'57	1°34'15
min. Earth dist.	1968 May 16 16:49	25° M 08'42	29.31318 AU	min. Earth dist.	1976 Jun 03 13:32	12° Δ 35'07	29.28042 AU
direct	1968 Aug 05 01:17	23° M 45'34		direct	1976 Aug 23 02:04	11° Δ 11'49	
conjunction	1968 Nov 18 12:57	26° M 15'33	1°39'35	conjunction	1976 Dec 05 16:36	13° Δ 41'09	1°27'12
minimum elong	1968 Nov 18 12:57	26° M 15'33	1°39'35	minimum elong	1976 Dec 05 16:37	13° Δ 41'09	1°27'12
max. Earth dist.	1968 Nov 17 20:07	26° M 13'58	31.31201 AU	max. Earth dist.	1976 Dec 05 03:55	13° Δ 39'57	31.27682 AU
retrograde	1969 Feb 28 20:20	28° M 42'36		retrograde	1977 Mar 18 07:35	16° Δ 08'47	
opposition	1969 May 18 11:36	27° M 20'37	1°45'50	opposition	1977 Jun 05 13:50	14° Δ 46'22	1°32'02
min. Earth dist.	1969 May 19 03:41	27° M 19'32	29.31269 AU	min. Earth dist.	1977 Jun 06 01:57	14° Δ 45'32	29.27513 AU
direct	1969 Aug 07 14:55	25° M 56'23		direct	1977 Aug 25 12:07	13° Δ 22'16	
conjunction	1969 Nov 20 22:25	28° M 26'19	1°38'31	conjunction	1977 Dec 08 01:48	15° Δ 51'31	1°25'04
minimum elong	1969 Nov 20 22:25	28° M 26'19	1°38'30	minimum elong	1977 Dec 08 01:48	15° Δ 51'31	1°25'04
max. Earth dist.	1969 Nov 20 05:20	28° M 24'43	31.31112 AU	max. Earth dist.	1977 Dec 07 14:40	15° Δ 50'28	31.27211 AU
retrograde	1970 Jan 04 19:53	0° Δ		retrograde	1978 Mar 20 18:47	18° Δ 19'15	
opposition	1970 Mar 03 09:01	0° Δ 53'28		opposition	1978 Jun 08 02:11	16° Δ 56'48	1°29'42
min. Earth dist.	1970 May 03 01:33	30° R M		min. Earth dist.	1978 Jun 08 12:35	16° Δ 56'06	29.27074 AU
direct	1970 May 20 23:45	29° M 31'28	1°44'36	direct	1978 Aug 28 00:54	15° Δ 32'45	
min. Earth dist.	1970 May 21 15:50	29° M 30'23	29.31136 AU	conjunction	1978 Dec 10 11:00	18° Δ 01'57	1°22'49
direct	1970 Aug 10 02:21	28° M 07'17		minimum elong	1978 Dec 10 11:00	18° Δ 01'57	1°22'49
	1970 Nov 06 16:30	0° Δ		max. Earth dist.	1978 Dec 09 23:58	18° Δ 00'55	31.26819 AU
conjunction	1970 Nov 23 08:07	0° Δ 37'11	1°37'18	retrograde	1979 Mar 23 07:35	20° Δ 29'49	

opposition	1979 Jun 10 14:33	19° $\overline{27}$ 07'21	1°27'13	opposition	1987 Jun 28 20:47	6° $\overline{37}$ 37'24	1°03'08
min. Earth dist.	1979 Jun 11 00:25	19° $\overline{27}$ 06'41	29.26719 AU	min. Earth dist.	1987 Jun 29 01:04	6° $\overline{37}$ 37'07	29.21798 AU
direct	1979 Aug 30 11:15	17° $\overline{27}$ 43'22		direct	1987 Sep 17 08:22	5° $\overline{37}$ 13'48	
conjunction	1979 Dec 12 20:21	20° $\overline{27}$ 12'33	1°20'26	conjunction	1987 Dec 29 23:20	7° $\overline{37}$ 42'33	0°57'29
minimum elong	1979 Dec 12 20:21	20° $\overline{27}$ 12'33	1°20'26	minimum elong	1987 Dec 29 23:21	7° $\overline{37}$ 42'33	0°57'28
max. Earth dist.	1979 Dec 12 11:11	20° $\overline{27}$ 11'41	31.26491 AU	max. Earth dist.	1987 Dec 29 18:31	7° $\overline{37}$ 42'06	31.21262 AU
retrograde	1980 Mar 24 17:42	22° $\overline{27}$ 40'33		retrograde	1988 Apr 11 13:17	10° $\overline{37}$ 11'39	
opposition	1980 Jun 12 03:11	21° $\overline{27}$ 18'05	1°24'37	opposition	1988 Jun 30 09:46	8° $\overline{37}$ 48'47	0°59'40
min. Earth dist.	1980 Jun 12 12:09	21° $\overline{27}$ 17'28	29.26389 AU	min. Earth dist.	1988 Jun 30 13:28	8° $\overline{37}$ 48'32	29.20793 AU
direct	1980 Aug 31 23:38	19° $\overline{27}$ 54'11		direct	1988 Sep 18 18:19	7° $\overline{37}$ 25'11	
conjunction	1980 Dec 14 05:26	22° $\overline{27}$ 23'20	1°17'56	conjunction	1988 Dec 31 08:39	9° $\overline{37}$ 53'51	0°54'12
minimum elong	1980 Dec 14 05:26	22° $\overline{27}$ 23'20	1°17'56	minimum elong	1988 Dec 31 08:39	9° $\overline{37}$ 53'51	0°54'12
max. Earth dist.	1980 Dec 13 20:06	22° $\overline{27}$ 22'27	31.26173 AU	max. Earth dist.	1988 Dec 31 05:54	9° $\overline{37}$ 53'35	31.20275 AU
retrograde	1981 Mar 27 06:08	24° $\overline{27}$ 51'29		retrograde	1989 Apr 13 23:35	12° $\overline{37}$ 23'04	
opposition	1981 Jun 14 15:51	23° $\overline{27}$ 29'00	1°21'53	opposition	1989 Jul 02 22:43	11° $\overline{37}$ 00'07	0°56'07
min. Earth dist.	1981 Jun 14 23:46	23° $\overline{27}$ 28'28	29.26059 AU	min. Earth dist.	1989 Jul 03 01:16	10° $\overline{37}$ 59'56	29.19830 AU
direct	1981 Sep 03 11:07	22° $\overline{27}$ 05'12		direct	1989 Sep 21 06:53	9° $\overline{37}$ 36'31	
conjunction	1981 Dec 16 14:53	24° $\overline{27}$ 34'19	1°15'19	conjunction	1990 Jan 02 17:55	12° $\overline{37}$ 05'07	0°50'50
minimum elong	1981 Dec 16 14:53	24° $\overline{27}$ 34'19	1°15'19	minimum elong	1990 Jan 02 17:56	12° $\overline{37}$ 05'07	0°50'50
max. Earth dist.	1981 Dec 16 07:18	24° $\overline{27}$ 33'36	31.25813 AU	max. Earth dist.	1990 Jan 02 15:12	12° $\overline{37}$ 04'52	31.19362 AU
retrograde	1982 Mar 29 16:38	27° $\overline{27}$ 02'37		retrograde	1990 Apr 16 12:55	14° $\overline{37}$ 34'28	
opposition	1982 Jun 17 04:31	25° $\overline{27}$ 40'08	1°19'01	opposition	1990 Jul 05 11:27	13° $\overline{37}$ 11'26	0°52'29
min. Earth dist.	1982 Jun 17 12:32	25° $\overline{27}$ 39'36	29.25658 AU	min. Earth dist.	1990 Jul 05 12:38	13° $\overline{37}$ 11'21	29.18966 AU
direct	1982 Sep 05 23:36	24° $\overline{27}$ 16'24		direct	1990 Sep 23 18:36	11° $\overline{37}$ 47'51	
conjunction	1982 Dec 19 00:14	26° $\overline{27}$ 45'29	1°12'35	conjunction	1991 Jan 05 03:22	14° $\overline{37}$ 16'25	0°47'24
minimum elong	1982 Dec 19 00:15	26° $\overline{27}$ 45'29	1°12'36	minimum elong	1991 Jan 05 03:22	14° $\overline{37}$ 16'25	0°47'24
max. Earth dist.	1982 Dec 18 16:25	26° $\overline{27}$ 44'45	31.25374 AU	max. Earth dist.	1991 Jan 05 02:38	14° $\overline{37}$ 16'21	31.18538 AU
retrograde	1983 Apr 01 04:27	29° $\overline{27}$ 13'57		retrograde	1991 Apr 19 00:11	16° $\overline{37}$ 45'55	
opposition	1983 Jun 19 17:15	27° $\overline{27}$ 51'27	1°16'03	opposition	1991 Jul 08 00:27	15° $\overline{37}$ 22'49	0°48'46
min. Earth dist.	1983 Jun 19 23:46	27° $\overline{27}$ 51'00	29.25156 AU	min. Earth dist.	1991 Jul 08 01:14	15° $\overline{37}$ 22'46	29.18178 AU
direct	1983 Sep 08 11:00	26° $\overline{27}$ 27'47		direct	1991 Sep 26 07:13	13° $\overline{37}$ 59'18	
conjunction	1983 Dec 21 09:41	28° $\overline{27}$ 56'49	1°09'45	conjunction	1992 Jan 07 12:35	16° $\overline{37}$ 27'48	0°43'53
minimum elong	1983 Dec 21 09:41	28° $\overline{27}$ 56'49	1°09'45	minimum elong	1992 Jan 07 12:36	16° $\overline{37}$ 27'48	0°43'53
max. Earth dist.	1983 Dec 21 02:52	28° $\overline{27}$ 56'11	31.24799 AU	max. Earth dist.	1992 Jan 07 12:15	16° $\overline{37}$ 27'46	31.17800 AU
	1984 Jan 19 02:55	0° $\overline{37}$		retrograde	1992 Apr 20 12:14	18° $\overline{37}$ 57'27	
retrograde	1984 Apr 02 14:04	1° $\overline{37}$ 25'26		opposition	1992 Jul 09 13:25	17° $\overline{37}$ 34'20	0°44'58
opposition	1984 Jun 21 06:15	0° $\overline{37}$ 02'54	1°12'58	min. Earth dist.	1992 Jul 09 12:14	17° $\overline{37}$ 34'24	29.17464 AU
min. Earth dist.	1984 Jun 21 13:12	0° $\overline{37}$ 02'26	29.24510 AU	direct	1992 Sep 27 18:35	16° $\overline{37}$ 10'51	
	1984 Jun 23 01:10	30° $\overline{37}$					
direct	1984 Sep 09 22:13	28° $\overline{27}$ 39'17		conjunction	1993 Jan 08 22:03	18° $\overline{37}$ 39'20	0°40'18
	1984 Nov 21 13:21	0° $\overline{37}$		minimum elong	1993 Jan 08 22:03	18° $\overline{37}$ 39'20	0°40'19
				max. Earth dist.	1993 Jan 08 23:01	18° $\overline{37}$ 39'25	31.17101 AU
conjunction	1984 Dec 22 19:10	1° $\overline{37}$ 08'16	1°06'49	retrograde	1993 Apr 22 22:32	21° $\overline{37}$ 09'09	
minimum elong	1984 Dec 22 19:11	1° $\overline{37}$ 08'16	1°06'50	opposition	1993 Jul 12 02:31	19° $\overline{37}$ 45'59	0°41'06
max. Earth dist.	1984 Dec 22 12:45	1° $\overline{37}$ 07'39	31.24093 AU	min. Earth dist.	1993 Jul 12 01:26	19° $\overline{37}$ 46'03	29.16776 AU
retrograde	1985 Apr 05 01:26	3° $\overline{37}$ 37'01		direct	1993 Sep 30 06:08	18° $\overline{37}$ 22'34	
opposition	1985 Jun 23 19:05	2° $\overline{37}$ 14'25	1°09'47				
min. Earth dist.	1985 Jun 24 00:25	2° $\overline{37}$ 14'04	29.23723 AU	conjunction	1994 Jan 11 07:32	20° $\overline{37}$ 51'01	0°36'39
direct	1985 Sep 12 09:16	0° $\overline{37}$ 50'49		minimum elong	1994 Jan 11 07:33	20° $\overline{37}$ 51'01	0°36'39
				max. Earth dist.	1994 Jan 11 09:22	20° $\overline{37}$ 51'11	31.16420 AU
conjunction	1985 Dec 25 04:35	3° $\overline{37}$ 19'44	1°03'48	retrograde	1994 Apr 25 10:36	23° $\overline{37}$ 21'00	
minimum elong	1985 Dec 25 04:35	3° $\overline{37}$ 19'44	1°03'48	opposition	1994 Jul 14 15:31	21° $\overline{37}$ 57'48	0°37'11
max. Earth dist.	1985 Dec 24 22:28	3° $\overline{37}$ 19'10	31.23237 AU	min. Earth dist.	1994 Jul 14 12:38	21° $\overline{37}$ 58'00	29.16069 AU
retrograde	1986 Apr 07 12:51	5° $\overline{37}$ 48'37		direct	1994 Oct 02 17:47	20° $\overline{37}$ 34'26	
opposition	1986 Jun 26 08:03	4° $\overline{37}$ 25'57	1°06'30				
min. Earth dist.	1986 Jun 26 13:47	4° $\overline{37}$ 25'34	29.22806 AU	conjunction	1995 Jan 13 17:06	23° $\overline{37}$ 02'51	0°32'57
direct	1986 Sep 14 19:39	3° $\overline{37}$ 02'21		minimum elong	1995 Jan 13 17:06	23° $\overline{37}$ 02'51	0°32'57
				max. Earth dist.	1995 Jan 13 19:17	23° $\overline{37}$ 03'03	31.15680 AU
conjunction	1986 Dec 27 14:04	5° $\overline{37}$ 31'11	1°00'41	retrograde	1995 Apr 27 22:14	25° $\overline{37}$ 33'01	
minimum elong	1986 Dec 27 14:04	5° $\overline{37}$ 31'11	1°00'41	opposition	1995 Jul 17 04:42	24° $\overline{37}$ 09'46	0°33'12
max. Earth dist.	1986 Dec 27 09:16	5° $\overline{37}$ 30'44	31.22277 AU	min. Earth dist.	1995 Jul 17 02:08	24° $\overline{37}$ 09'57	29.15298 AU
retrograde	1987 Apr 10 00:12	8° $\overline{37}$ 00'10		direct	1995 Oct 05 03:56	22° $\overline{37}$ 46'27	

conjunction	1996 Jan 16 02:54	25° $\overline{3}$ 14'50	0°29'12	behind sun begin	2003 Jan 30 17:11	10° \approx 39'14	
minimum elong	1996 Jan 16 02:54	25° $\overline{3}$ 14'50	0°29'12	behind sun end	2003 Jan 31 05:58	10° \approx 40'23	
max. Earth dist.	1996 Jan 16 06:28	25° $\overline{3}$ 15'10	31.14868 AU	max. Earth dist.	2003 Jan 31 08:22	10° \approx 40'37	31.06915 AU
retrograde	1996 Apr 29 09:52	27° $\overline{3}$ 45'11		retrograde	2003 May 16 00:46	13° \approx 11'10	
opposition	1996 Jul 18 17:55	26° $\overline{3}$ 21'53	0°29'10	opposition	2003 Aug 04 13:54	11° \approx 47'15	0°00'05
min. Earth dist.	1996 Jul 18 13:59	26° $\overline{3}$ 22'09	29.14422 AU	min. Earth dist.	2003 Aug 04 03:57	11° \approx 47'56	29.06427 AU
direct	1996 Oct 06 15:55	24° $\overline{3}$ 58'36		desc. node	2003 Aug 11 04:10	11° \approx 36'31	
				direct	2003 Oct 23 01:54	10° \approx 23'58	
conjunction	1997 Jan 17 12:34	27° $\overline{3}$ 26'57	0°25'25				
minimum elong	1997 Jan 17 12:34	27° $\overline{3}$ 26'57	0°25'25	conjunction	2004 Feb 02 09:29	12° \approx 52'04	0°-1'-55
max. Earth dist.	1997 Jan 17 15:45	27° $\overline{3}$ 27'15	31.13931 AU	minimum elong	2004 Feb 02 09:29	12° \approx 52'04	0°01'57
retrograde	1997 May 01 23:20	29° $\overline{3}$ 57'28		behind sun begin	2004 Feb 02 03:05	12° \approx 51'29	
opposition	1997 Jul 21 07:15	28° $\overline{3}$ 34'05	0°25'05	behind sun end	2004 Feb 02 15:53	12° \approx 52'38	
min. Earth dist.	1997 Jul 21 03:09	28° $\overline{3}$ 34'22	29.13424 AU	max. Earth dist.	2004 Feb 02 18:51	12° \approx 52'56	31.05960 AU
direct	1997 Oct 09 01:28	27° $\overline{3}$ 10'49			2004 Apr 09 08:43	15° \approx	
				retrograde	2004 May 17 12:13	15° \approx 23'37	
conjunction	1998 Jan 19 22:34	29° $\overline{3}$ 39'08	0°21'35		2004 Jun 25 20:39	15° \approx	
minimum elong	1998 Jan 19 22:34	29° $\overline{3}$ 39'08	0°21'35	opposition	2004 Aug 06 03:07	13° \approx 59'38	0°-4'-7
max. Earth dist.	1998 Jan 20 03:15	29° $\overline{3}$ 39'34	31.12862 AU	min. Earth dist.	2004 Aug 05 17:08	14° \approx 00'19	29.05537 AU
	1998 Jan 29 02:52	0° \approx		direct	2004 Oct 24 11:56	12° \approx 36'24	
retrograde	1998 May 04 10:39	2° \approx 09'47			2005 Feb 01 20:20	15° \approx	
opposition	1998 Jul 23 20:19	0° \approx 46'20	0°20'58				
min. Earth dist.	1998 Jul 23 15:35	0° \approx 46'39	29.12280 AU	conjunction	2005 Feb 03 19:28	15° \approx 04'29	0°-5'-52
	1998 Aug 23 00:13	30° \overline{R}		minimum elong	2005 Feb 03 19:29	15° \approx 04'29	0°05'53
direct	1998 Oct 11 14:03	29° $\overline{3}$ 23'03		behind sun begin	2005 Feb 03 13:21	15° \approx 03'55	
	1998 Nov 28 01:19	0° \approx		behind sun end	2005 Feb 04 01:37	15° \approx 05'02	
conjunction	1999 Jan 22 08:22	1° \approx 51'19	0°17'44	max. Earth dist.	2005 Feb 04 06:42	15° \approx 05'32	31.05121 AU
minimum elong	1999 Jan 22 08:22	1° \approx 51'19	0°17'44	retrograde	2005 May 19 23:35	17° \approx 36'13	
max. Earth dist.	1999 Jan 22 12:39	1° \approx 51'43	31.11674 AU	opposition	2005 Aug 08 16:11	16° \approx 12'12	0°-8'-20
retrograde	1999 May 07 00:51	4° \approx 22'06		min. Earth dist.	2005 Aug 08 04:32	16° \approx 13'00	29.04730 AU
opposition	1999 Jul 26 09:32	2° \approx 58'33	0°16'50		2005 Sep 30 22:39	15° \approx	
min. Earth dist.	1999 Jul 26 03:52	2° \approx 58'56	29.11052 AU	direct	2005 Oct 26 23:24	14° \approx 49'01	
direct	1999 Oct 14 01:35	1° \approx 35'15			2005 Nov 21 08:51	15° \approx	
				conjunction	2006 Feb 06 05:33	17° \approx 17'06	0°-9'-47
conjunction	2000 Jan 24 18:08	4° \approx 03'28	0°13'51	minimum elong	2006 Feb 06 05:33	17° \approx 17'06	0°09'48
minimum elong	2000 Jan 24 18:08	4° \approx 03'28	0°13'50	behind sun begin	2006 Feb 06 00:16	17° \approx 16'38	
behind sun begin	2000 Jan 24 14:40	4° \approx 03'09		behind sun end	2006 Feb 06 10:49	17° \approx 17'35	
behind sun end	2000 Jan 24 21:37	4° \approx 03'47		max. Earth dist.	2006 Feb 06 16:36	17° \approx 18'08	31.04345 AU
max. Earth dist.	2000 Jan 25 00:11	4° \approx 04'02	31.10413 AU	retrograde	2006 May 22 13:05	19° \approx 49'01	
retrograde	2000 May 08 12:30	6° \approx 34'24		opposition	2006 Aug 11 05:14	18° \approx 24'59	0°-12'-32
opposition	2000 Jul 27 22:49	5° \approx 10'43	0°12'40	min. Earth dist.	2006 Aug 10 17:18	18° \approx 25'48	29.03983 AU
min. Earth dist.	2000 Jul 27 16:54	5° \approx 11'07	29.09783 AU	direct	2006 Oct 29 07:56	17° \approx 01'50	
direct	2000 Oct 15 14:12	3° \approx 47'25					
conjunction	2001 Jan 26 03:55	6° \approx 15'34	0°09'57	conjunction	2007 Feb 08 15:52	19° \approx 29'57	0°-13'-42
minimum elong	2001 Jan 26 03:55	6° \approx 15'34	0°09'58	minimum elong	2007 Feb 08 15:52	19° \approx 29'57	0°13'42
behind sun begin	2001 Jan 25 22:41	6° \approx 15'06		behind sun begin	2007 Feb 08 12:19	19° \approx 29'37	
behind sun end	2001 Jan 26 09:08	6° \approx 16'03		behind sun end	2007 Feb 08 19:25	19° \approx 30'16	
max. Earth dist.	2001 Jan 26 10:19	6° \approx 16'10	31.09167 AU	max. Earth dist.	2007 Feb 09 04:43	19° \approx 31'09	31.03602 AU
retrograde	2001 May 11 01:13	8° \approx 46'38		retrograde	2007 May 25 01:08	22° \approx 02'03	
opposition	2001 Jul 30 11:48	7° \approx 22'51	0°08'29	opposition	2007 Aug 13 18:25	20° \approx 37'59	0°-16'-43
min. Earth dist.	2001 Jul 30 04:04	7° \approx 23'23	29.08568 AU	min. Earth dist.	2007 Aug 13 05:39	20° \approx 38'51	29.03234 AU
direct	2001 Oct 18 01:49	5° \approx 59'32		direct	2007 Oct 31 20:07	19° \approx 14'53	
conjunction	2002 Jan 28 13:45	8° \approx 27'40	0°06'03	conjunction	2008 Feb 11 02:04	21° \approx 43'00	0°-17'-36
minimum elong	2002 Jan 28 13:45	8° \approx 27'40	0°06'03	minimum elong	2008 Feb 11 02:03	21° \approx 43'00	0°17'37
behind sun begin	2002 Jan 28 07:39	8° \approx 27'07		max. Earth dist.	2008 Feb 11 14:36	21° \approx 44'10	31.02844 AU
behind sun end	2002 Jan 28 19:51	8° \approx 28'13		retrograde	2008 May 26 16:14	24° \approx 15'17	
max. Earth dist.	2002 Jan 28 21:22	8° \approx 28'22	31.07982 AU	opposition	2008 Aug 15 07:43	22° \approx 51'10	0°-20'-54
retrograde	2002 May 13 12:10	10° \approx 58'52		min. Earth dist.	2008 Aug 14 18:10	22° \approx 52'05	29.02456 AU
opposition	2002 Aug 02 00:57	9° \approx 35'01	0°04'17	direct	2008 Nov 02 06:38	21° \approx 28'06	
min. Earth dist.	2002 Aug 01 17:08	9° \approx 35'33	29.07440 AU				
direct	2002 Oct 20 13:52	8° \approx 11'42		conjunction	2009 Feb 12 12:41	23° \approx 56'13	0°-21'-29
				minimum elong	2009 Feb 12 12:41	23° \approx 56'13	0°21'29
conjunction	2003 Jan 30 23:34	10° \approx 39'48	0°02'07	max. Earth dist.	2009 Feb 13 02:35	23° \approx 57'32	31.02016 AU
minimum elong	2003 Jan 30 23:34	10° \approx 39'48	0°02'07	retrograde	2009 May 29 04:30	26° \approx 28'40	
				opposition	2009 Aug 17 20:55	25° \approx 04'30	0°-25'-2

min. Earth dist. direct	2009 Aug 17 07:34 2009 Nov 04 18:10	25° 22 05'25 23° 22 41'27	29.01584 AU	opposition direct	2017 Sep 05 05:28 2017 Nov 22 14:20	12° 11 51'05 11° 11 27'56	0°-56'-21
conjunction	2010 Feb 14 23:19	26° 22 09'34	0°-25'-20	conjunction	2018 Mar 04 13:54	13° 11 55'58	0°-54'-22
minimum elong	2010 Feb 14 23:19	26° 22 09'34	0°25'21	minimum elong	2018 Mar 04 13:54	13° 11 55'58	0°54'24
max. Earth dist.	2010 Feb 15 13:02	26° 22 10'52	31.01095 AU	max. Earth dist.	2018 Mar 05 09:42	13° 11 57'51	30.93525 AU
retrograde	2010 May 31 18:48	28° 22 42'09		retrograde	2018 Jun 18 23:26	16° 11 29'33	
opposition	2010 Aug 20 10:07	27° 22 17'54	0°-29'-8	opposition	2018 Sep 07 18:27	15° 11 04'44	0°-59'-57
min. Earth dist.	2010 Aug 19 19:32	27° 22 18'54	29.00605 AU	min. Earth dist.	2018 Sep 06 23:26	15° 11 06'03	28.93289 AU
direct	2010 Nov 07 06:04	25° 22 54'50		direct	2018 Nov 25 01:08	13° 11 41'38	
conjunction	2011 Feb 17 09:56	28° 22 22'57	0°-29'-9	conjunction	2019 Mar 07 01:00	16° 11 09'43	0°-57'-42
minimum elong	2011 Feb 17 09:56	28° 22 22'57	0°29'10	minimum elong	2019 Mar 07 01:00	16° 11 09'43	0°57'43
max. Earth dist.	2011 Feb 18 00:13 2011 Apr 04 13:50	28° 22 24'18 0° 11	31.00049 AU	max. Earth dist.	2019 Mar 07 20:55	16° 11 11'36	30.92976 AU
retrograde	2011 Jun 03 07:28 2011 Aug 05 02:54	0° 11 55'39 30° 11		retrograde	2019 Jun 21 14:35	18° 11 43'27	
opposition	2011 Aug 22 23:26	29° 22 31'18	0°-33'-12	min. Earth dist.	2019 Sep 09 11:08	17° 11 20'01	28.92763 AU
min. Earth dist.	2011 Aug 22 09:20	29° 22 32'16	28.99518 AU	opposition	2019 Sep 10 07:24	17° 11 18'38	-1°-3'-28
direct	2011 Nov 09 18:54 2012 Feb 03 19:03	28° 22 08'13 0° 11		direct	2019 Nov 27 12:32	15° 11 55'34	
conjunction	2012 Feb 19 20:41	0° 11 36'17	0°-32'-55	conjunction	2020 Mar 08 12:23	18° 11 23'43	-1°00'-57
minimum elong	2012 Feb 19 20:41	0° 11 36'17	0°32'57	minimum elong	2020 Mar 08 12:23	18° 11 23'42	1°00'59
max. Earth dist.	2012 Feb 20 11:43	0° 11 37'42	30.98940 AU	max. Earth dist.	2020 Mar 09 08:54	18° 11 25'39	30.92446 AU
retrograde	2012 Jun 04 21:04	3° 11 09'05		retrograde	2020 Jun 23 04:32	20° 11 57'36	
opposition	2012 Aug 24 12:32	1° 11 44'38	0°-37'-13	opposition	2020 Sep 11 20:26	19° 11 32'46	-1°-6'-54
min. Earth dist.	2012 Aug 23 20:49	1° 11 45'43	28.98391 AU	min. Earth dist.	2020 Sep 11 00:50	19° 11 34'07	28.92238 AU
direct	2012 Nov 11 07:52	0° 11 21'31		direct	2020 Nov 29 00:36	18° 11 09'45	
conjunction	2013 Feb 21 07:19	2° 11 49'32	0°-36'-39	conjunction	2021 Mar 11 00:01	20° 11 37'57	-1°-4'-7
minimum elong	2013 Feb 21 07:18	2° 11 49'32	0°36'40	minimum elong	2021 Mar 11 00:01	20° 11 37'57	1°04'07
max. Earth dist.	2013 Feb 21 22:31	2° 11 50'59	30.97806 AU	max. Earth dist.	2021 Mar 11 20:58	20° 11 39'56	30.91902 AU
retrograde	2013 Jun 07 08:25	5° 11 22'27		retrograde	2021 Jun 25 19:21	23° 11 11'59	
min. Earth dist.	2013 Aug 26 10:22	3° 11 58'57	28.97282 AU	opposition	2021 Sep 14 09:21	21° 11 47'08	-1°-10'-13
opposition	2013 Aug 27 01:43	3° 11 57'54	0°-41'-10	min. Earth dist.	2021 Sep 13 12:35	21° 11 48'34	28.91657 AU
direct	2013 Nov 13 18:42	2° 11 34'45		direct	2021 Dec 01 13:22	20° 11 24'09	
conjunction	2014 Feb 23 18:11	5° 11 02'43	0°-40'-19	conjunction	2022 Mar 13 11:43	22° 11 52'24	-1°-7'-10
minimum elong	2014 Feb 23 18:11	5° 11 02'43	0°40'20	minimum elong	2022 Mar 13 11:43	22° 11 52'24	1°07'12
max. Earth dist.	2014 Feb 24 11:00	5° 11 04'19	30.96724 AU	max. Earth dist.	2022 Mar 14 08:12	22° 11 54'20	30.91261 AU
retrograde	2014 Jun 09 19:50	7° 11 35'44		retrograde	2022 Jun 28 07:55	25° 11 26'34	
opposition	2014 Aug 29 14:33	6° 11 11'06	0°-45'-4	opposition	2022 Sep 16 22:21	24° 11 01'41	-1°-13'-26
min. Earth dist.	2014 Aug 28 21:42	6° 11 12'15	28.96244 AU	min. Earth dist.	2022 Sep 16 02:33	24° 11 03'03	28.90974 AU
direct	2014 Nov 16 07:06	4° 11 47'55		direct	2022 Dec 04 00:15	22° 11 38'42	
conjunction	2015 Feb 26 04:55	7° 11 15'54	0°-43'-56	conjunction	2023 Mar 15 23:39	25° 11 06'58	-1°-10'-8
minimum elong	2015 Feb 26 04:54	7° 11 15'54	0°43'56	minimum elong	2023 Mar 15 23:39	25° 11 06'58	1°10'08
max. Earth dist.	2015 Feb 26 21:31	7° 11 17'28	30.95738 AU	max. Earth dist.	2023 Mar 16 21:04	25° 11 09'00	30.90523 AU
retrograde	2015 Jun 12 09:08	9° 11 49'03		retrograde	2023 Jun 30 21:07	27° 11 41'13	
min. Earth dist.	2015 Aug 31 10:28	8° 11 25'30	28.95332 AU	opposition	2023 Sep 19 11:17	26° 11 16'18	-1°-16'-33
opposition	2015 Sep 01 03:38	8° 11 24'19	0°-48'-54	min. Earth dist.	2023 Sep 18 14:37	26° 11 17'43	28.90178 AU
direct	2015 Nov 18 16:31	7° 11 01'09		direct	2023 Dec 06 13:22	24° 11 53'18	
conjunction	2016 Feb 28 15:47	9° 11 29'07	0°-47'-29	conjunction	2024 Mar 17 11:22	27° 11 21'34	-1°-12'-59
minimum elong	2016 Feb 28 15:47	9° 11 29'07	0°47'30	minimum elong	2024 Mar 17 11:22	27° 11 21'34	1°13'01
max. Earth dist.	2016 Feb 29 10:18	9° 11 30'52	30.94881 AU	max. Earth dist.	2024 Mar 18 07:53	27° 11 23'31	30.89683 AU
retrograde	2016 Jun 13 20:42	12° 11 02'24		retrograde	2024 Jul 02 10:41	29° 11 55'55	
opposition	2016 Sep 02 16:38	10° 11 37'38	0°-52'-39	min. Earth dist.	2024 Sep 20 04:06	28° 11 32'18	28.89311 AU
min. Earth dist.	2016 Sep 01 22:27	10° 11 38'53	28.94538 AU	opposition	2024 Sep 21 00:17	28° 11 30'54	-1°-19'-33
direct	2016 Nov 20 04:38	9° 11 14'28		direct	2024 Dec 07 23:43	27° 11 07'52	
conjunction	2017 Mar 02 02:44	11° 11 42'27	0°-50'-58	conjunction	2025 Mar 19 23:25	29° 11 36'08	-1°-15'-44
minimum elong	2017 Mar 02 02:44	11° 11 42'27	0°50'58	minimum elong	2025 Mar 19 23:25	29° 11 36'08	1°15'44
max. Earth dist.	2017 Mar 02 21:01	11° 11 44'11	30.94153 AU	max. Earth dist.	2025 Mar 20 21:10	29° 11 38'12	30.88788 AU
retrograde	2017 Jun 16 11:10	14° 11 15'53		retrograde	2025 Mar 30 21:58	0° 11	
min. Earth dist.	2017 Sep 04 10:28	12° 11 52'23	28.93874 AU	opposition	2025 Jul 04 21:33	2° 11 10'32	
				min. Earth dist.	2025 Sep 23 12:53	0° 11 45'27	-1°-22'-25
					2025 Sep 22 16:17	0° 11 46'53	28.88412 AU
					2025 Oct 22 09:51	30° 11	

direct	2025 Dec 10 12:24	29° 18 22'22		conjunction	2034 Apr 09 13:56	19° 19 47'19	-1°-34'-51
	2026 Jan 26 17:34	0° 18 0'		minimum elong	2034 Apr 09 13:56	19° 19 47'19	1°34'52
				max. Earth dist.	2034 Apr 10 13:55	19° 19 49'35	30.84224 AU
conjunction	2026 Mar 22 11:18	1° 19 50'38	-1°-18'-22	retrograde	2034 Jul 25 22:31	22° 20 22'15	
minimum elong	2026 Mar 22 11:18	1° 19 50'38	1°18'23	min. Earth dist.	2034 Oct 13 07:34	20° 20 58'28	28.84168 AU
max. Earth dist.	2026 Mar 23 08:22	1° 19 52'38	30.87904 AU	opposition	2034 Oct 14 05:29	20° 20 56'56	-1°-42'-13
retrograde	2026 Jul 07 10:55	4° 20 25'05		direct	2034 Dec 30 20:08	19° 19 33'43	
min. Earth dist.	2026 Sep 25 04:36	3° 20 01'23	28.87564 AU				
opposition	2026 Sep 26 01:36	2° 20 59'55	-1°-25'-10	conjunction	2035 Apr 12 02:40	22° 20 02'23	-1°-36'-17
direct	2026 Dec 12 22:18	1° 20 36'47		minimum elong	2035 Apr 12 02:39	22° 20 02'23	1°36'17
				max. Earth dist.	2035 Apr 13 01:18	22° 20 04'32	30.83874 AU
conjunction	2027 Mar 24 23:12	4° 20 05'04	-1°-20'-53	retrograde	2035 Jul 28 12:27	24° 20 37'22	
minimum elong	2027 Mar 24 23:12	4° 20 05'04	1°20'53	opposition	2035 Oct 16 17:57	23° 20 12'01	-1°-43'-41
max. Earth dist.	2027 Mar 25 21:36	4° 20 07'11	30.87080 AU	min. Earth dist.	2035 Oct 15 20:16	23° 20 13'32	28.83776 AU
retrograde	2027 Jul 09 22:41	6° 20 39'34		direct	2036 Jan 02 06:32	21° 20 48'46	
opposition	2027 Sep 28 14:19	5° 20 14'21	-1°-27'-48				
min. Earth dist.	2027 Sep 27 17:22	5° 20 15'48	28.86796 AU	conjunction	2036 Apr 13 15:47	24° 20 17'29	-1°-37'-35
direct	2027 Dec 15 09:07	3° 20 51'09		minimum elong	2036 Apr 13 15:47	24° 20 17'29	1°37'36
				max. Earth dist.	2036 Apr 14 14:59	24° 20 19'41	30.83429 AU
conjunction	2028 Mar 26 11:16	6° 20 19'27	-1°-23'-16	retrograde	2036 Jul 30 00:18	26° 20 52'28	
minimum elong	2028 Mar 26 11:15	6° 20 19'27	1°23'17	min. Earth dist.	2036 Oct 17 09:18	25° 20 28'34	28.83293 AU
max. Earth dist.	2028 Mar 27 09:34	6° 20 21'34	30.86377 AU	opposition	2036 Oct 18 06:12	25° 20 27'06	-1°-44'-59
retrograde	2028 Jul 11 13:04	8° 20 54'01		direct	2037 Jan 03 17:45	24° 20 03'48	
min. Earth dist.	2028 Sep 29 04:47	7° 20 30'16	28.86162 AU				
opposition	2028 Sep 30 02:48	7° 20 28'44	-1°-30'-17	conjunction	2037 Apr 16 04:49	26° 20 32'33	-1°-38'-44
direct	2028 Dec 16 20:43	6° 20 05'31		minimum elong	2037 Apr 16 04:49	26° 20 32'33	1°38'44
				max. Earth dist.	2037 Apr 17 03:08	26° 20 34'40	30.82930 AU
conjunction	2029 Mar 28 23:25	8° 20 33'51	-1°-25'-32	retrograde	2037 Aug 01 13:57	29° 20 07'32	
minimum elong	2029 Mar 28 23:25	8° 20 33'51	1°25'32	opposition	2037 Oct 20 18:21	27° 20 42'07	-1°-46'-8
max. Earth dist.	2029 Mar 29 22:17	8° 20 36'01	30.85793 AU	min. Earth dist.	2037 Oct 19 21:04	27° 20 43'37	28.82779 AU
retrograde	2029 Jul 14 02:10	11° 20 08'29		direct	2038 Jan 06 05:32	26° 20 18'45	
opposition	2029 Oct 02 15:24	9° 20 43'09	-1°-32'-38				
min. Earth dist.	2029 Oct 01 17:57	9° 20 44'39	28.85648 AU	conjunction	2038 Apr 18 17:48	28° 20 47'33	-1°-39'-43
direct	2029 Dec 19 08:23	8° 20 19'55		minimum elong	2038 Apr 18 17:48	28° 20 47'33	1°39'45
				max. Earth dist.	2038 Apr 19 16:14	28° 20 49'40	30.82405 AU
conjunction	2030 Mar 31 11:38	10° 20 48'18	-1°-27'-40		2038 May 22 00:12	0° 20 8	
minimum elong	2030 Mar 31 11:38	10° 20 48'18	1°27'41	retrograde	2038 Aug 04 01:57	1° 20 822'30	
max. Earth dist.	2030 Apr 01 11:02	10° 20 50'30	30.85344 AU		2038 Oct 21 12:26	30° 20 8 19 0'	
retrograde	2030 Jul 16 16:28	13° 20 22'59		min. Earth dist.	2038 Oct 22 10:13	29° 20 58'28	28.82278 AU
min. Earth dist.	2030 Oct 04 04:59	11° 20 59'14	28.85256 AU	opposition	2038 Oct 23 06:29	29° 20 57'03	-1°-47'-7
opposition	2030 Oct 05 03:46	11° 20 57'39	-1°-34'-51	direct	2039 Jan 08 17:00	28° 20 33'37	
direct	2030 Dec 21 20:39	10° 20 34'24			2039 Mar 23 20:35	0° 20 8	
conjunction	2031 Apr 02 23:55	13° 20 02'50	-1°-29'-40	conjunction	2039 Apr 21 06:52	1° 20 802'27	-1°-40'-34
minimum elong	2031 Apr 02 23:54	13° 20 02'50	1°29'41	minimum elong	2039 Apr 21 06:52	1° 20 802'27	1°40'35
max. Earth dist.	2031 Apr 03 23:05	13° 20 05'02	30.84999 AU	max. Earth dist.	2039 Apr 22 05:21	1° 20 804'35	30.81947 AU
retrograde	2031 Jul 19 06:11	15° 20 37'36		retrograde	2039 Aug 06 15:57	3° 20 837'24	
opposition	2031 Oct 07 16:21	14° 20 12'15	-1°-36'-55	opposition	2039 Oct 25 18:23	2° 20 811'55	-1°-47'-57
min. Earth dist.	2031 Oct 06 18:24	14° 20 13'47	28.84965 AU	min. Earth dist.	2039 Oct 24 21:08	2° 20 813'24	28.81866 AU
direct	2031 Dec 24 07:40	12° 20 49'01		direct	2040 Jan 11 05:08	0° 20 848'25	
conjunction	2032 Apr 04 12:24	15° 20 17'31	-1°-31'-32	conjunction	2040 Apr 22 19:52	3° 20 817'18	-1°-41'-16
minimum elong	2032 Apr 04 12:24	15° 20 17'31	1°31'34	minimum elong	2040 Apr 22 19:52	3° 20 817'18	1°41'17
max. Earth dist.	2032 Apr 05 12:39	15° 20 19'48	30.84741 AU	max. Earth dist.	2040 Apr 23 17:55	3° 20 819'23	30.81583 AU
retrograde	2032 Jul 20 20:43	17° 20 52'20		retrograde	2040 Aug 08 05:24	5° 20 852'14	
min. Earth dist.	2032 Oct 08 06:00	16° 20 28'35	28.84721 AU	min. Earth dist.	2040 Oct 26 10:10	4° 20 828'09	28.81572 AU
opposition	2032 Oct 09 04:44	16° 20 27'00	-1°-38'-50	opposition	2040 Oct 27 06:23	4° 20 826'43	-1°-48'-36
direct	2032 Dec 25 21:02	15° 20 03'47		direct	2041 Jan 12 16:36	3° 20 803'12	
conjunction	2033 Apr 07 01:01	17° 20 32'20	-1°-33'-16	conjunction	2041 Apr 25 09:08	5° 20 832'08	-1°-41'-48
minimum elong	2033 Apr 07 01:01	17° 20 32'20	1°33'16	minimum elong	2041 Apr 25 09:08	5° 20 832'08	1°41'48
max. Earth dist.	2033 Apr 08 00:10	17° 20 34'32	30.84499 AU	max. Earth dist.	2041 Apr 26 07:58	5° 20 834'17	30.81359 AU
retrograde	2033 Jul 23 10:26	20° 20 07'14		retrograde	2041 Aug 10 19:55	8° 20 807'02	
opposition	2033 Oct 11 17:06	18° 20 41'54	-1°-40'-36	opposition	2041 Oct 29 18:02	6° 20 841'32	-1°-49'-6
min. Earth dist.	2033 Oct 10 19:14	18° 20 43'26	28.84480 AU	min. Earth dist.	2041 Oct 28 21:01	6° 20 843'00	28.81417 AU
direct	2033 Dec 28 07:35	17° 20 18'41		direct	2042 Jan 15 06:18	5° 20 817'58	

conjunction	2042 Apr 27 22:14	7°846'59	-1°-42'-11	conjunction	2050 May 16 11:28	25°848'35	-1°-39'-37
minimum elong	2042 Apr 27 22:14	7°846'59	1°42'13	minimum elong	2050 May 16 11:29	25°848'35	1°39'39
max. Earth dist.	2042 Apr 28 20:06	7°849'02	30.81281 AU	max. Earth dist.	2050 May 17 06:22	25°850'21	30.82739 AU
retrograde	2042 Aug 13 09:10	10°821'52		retrograde	2050 Aug 31 16:35	28°823'03	
min. Earth dist.	2042 Oct 31 09:33	8°857'49	28.81424 AU	min. Earth dist.	2050 Nov 18 09:58	26°859'00	28.82865 AU
opposition	2042 Nov 01 05:55	8°856'23	-1°-49'-25	opposition	2050 Nov 19 02:54	26°857'49	-1°-46'00
direct	2043 Jan 17 17:04	7°832'48		direct	2051 Feb 04 14:58	25°834'00	
conjunction	2043 Apr 30 11:28	10°801'53	-1°-42'-25	conjunction	2051 May 19 01:08	28°803'35	-1°-38'-37
minimum elong	2043 Apr 30 11:28	10°801'53	1°42'26	minimum elong	2051 May 19 01:08	28°803'35	1°38'37
max. Earth dist.	2043 May 01 10:24	10°804'03	30.81360 AU	max. Earth dist.	2051 May 19 18:37	28°805'13	30.82798 AU
retrograde	2043 Aug 15 21:56	12°836'45			2051 Jul 16 11:51	0°8	
opposition	2043 Nov 03 17:41	11°811'19	-1°-49'-35	retrograde	2051 Sep 03 05:39	0°837'57	
min. Earth dist.	2043 Nov 02 21:04	11°812'46	28.81563 AU		2051 Oct 22 23:52	30°8	
direct	2044 Jan 20 05:44	9°847'45		opposition	2051 Nov 21 14:18	29°812'42	-1°-44'-50
conjunction	2044 May 02 00:48	12°816'54	-1°-42'-29	min. Earth dist.	2051 Nov 20 22:33	29°813'49	28.82952 AU
minimum elong	2044 May 02 00:49	12°816'54	1°42'31	direct	2052 Feb 07 02:10	27°848'48	
max. Earth dist.	2044 May 02 22:29	12°818'57	30.81567 AU		2052 May 12 10:06	0°8	
retrograde	2044 Aug 17 12:37	14°851'46		conjunction	2052 May 20 15:08	0°818'26	-1°-37'-27
min. Earth dist.	2044 Nov 04 08:59	13°827'48	28.81821 AU	minimum elong	2052 May 20 15:08	0°818'26	1°37'28
opposition	2044 Nov 05 05:20	13°826'22	-1°-49'-34	max. Earth dist.	2052 May 21 09:11	0°820'07	30.82919 AU
direct	2045 Jan 21 16:17	12°802'48		retrograde	2052 Sep 04 18:30	2°852'40	
conjunction	2045 May 04 14:27	14°832'03	-1°-42'-24	min. Earth dist.	2052 Nov 22 09:44	1°828'32	28.83109 AU
minimum elong	2045 May 04 14:27	14°832'03	1°42'25	opposition	2052 Nov 23 01:22	1°827'26	-1°-43'-31
max. Earth dist.	2045 May 05 12:45	14°834'09	30.81850 AU	direct	2053 Feb 08 15:35	0°803'29	
	2045 May 17 00:54	15°8		conjunction	2053 May 23 04:59	2°833'09	-1°-36'-9
retrograde	2045 Aug 20 00:17	17°806'54		minimum elong	2053 May 23 04:59	2°833'09	1°36'09
opposition	2045 Nov 07 17:03	15°841'34	-1°-49'-23	max. Earth dist.	2053 May 23 21:25	2°834'42	30.83137 AU
min. Earth dist.	2045 Nov 06 21:33	15°842'56	28.82116 AU	retrograde	2053 Sep 07 08:46	5°807'17	
	2045 Dec 03 10:16	15°8		opposition	2053 Nov 25 12:33	3°842'04	-1°-42'-2
direct	2046 Jan 24 03:35	14°818'00		min. Earth dist.	2053 Nov 24 21:15	3°843'09	28.83392 AU
	2046 Mar 15 07:37	15°8		direct	2054 Feb 11 03:05	2°818'04	
conjunction	2046 May 07 03:58	16°847'20	-1°-42'-9	conjunction	2054 May 25 18:48	4°847'48	-1°-34'-41
minimum elong	2046 May 07 03:58	16°847'20	1°42'11	minimum elong	2054 May 25 18:48	4°847'48	1°34'43
max. Earth dist.	2046 May 08 01:07	16°849'19	30.82153 AU	max. Earth dist.	2054 May 26 11:55	4°849'24	30.83481 AU
retrograde	2046 Aug 22 13:24	19°822'09		retrograde	2054 Sep 09 19:51	7°821'50	
min. Earth dist.	2046 Nov 09 09:10	17°858'15	28.82406 AU	opposition	2054 Nov 27 23:42	5°856'39	-1°-40'-24
opposition	2046 Nov 10 04:43	17°856'52	-1°-49'-2	min. Earth dist.	2054 Nov 27 09:04	5°857'41	28.83803 AU
direct	2047 Jan 26 14:52	16°833'18		direct	2055 Feb 13 15:03	4°832'37	
conjunction	2047 May 09 17:47	19°802'43	-1°-41'-45	conjunction	2055 May 28 08:40	7°802'25	-1°-33'-6
minimum elong	2047 May 09 17:47	19°802'43	1°41'46	minimum elong	2055 May 28 08:40	7°802'25	1°33'07
max. Earth dist.	2047 May 10 14:36	19°804'40	30.82406 AU	max. Earth dist.	2055 May 29 00:36	7°803'55	30.83980 AU
retrograde	2047 Aug 25 01:15	21°837'29		retrograde	2055 Sep 12 09:05	9°836'21	
opposition	2047 Nov 12 16:27	20°812'14	-1°-48'-31	opposition	2055 Nov 30 10:41	8°811'15	-1°-38'-37
min. Earth dist.	2047 Nov 11 22:27	20°813'30	28.82624 AU	min. Earth dist.	2055 Nov 29 19:50	8°812'18	28.84370 AU
direct	2048 Jan 29 01:25	18°848'38		direct	2056 Feb 16 02:09	6°847'12	
conjunction	2048 May 11 07:41	21°818'06	-1°-41'-12	conjunction	2056 May 29 22:41	9°817'06	-1°-31'-21
minimum elong	2048 May 11 07:41	21°818'06	1°41'13	minimum elong	2056 May 29 22:42	9°817'06	1°31'23
max. Earth dist.	2048 May 12 03:39	21°819'58	30.82592 AU	max. Earth dist.	2056 May 30 14:40	9°818'36	30.84608 AU
retrograde	2048 Aug 26 14:59	23°852'48		retrograde	2056 Sep 13 20:46	11°850'57	
min. Earth dist.	2048 Nov 13 09:42	22°828'51	28.82757 AU	opposition	2056 Dec 01 21:48	10°825'56	-1°-36'-41
opposition	2048 Nov 14 04:02	22°827'33	-1°-47'-51	min. Earth dist.	2056 Dec 01 08:20	10°826'54	28.85050 AU
direct	2049 Jan 30 13:23	21°803'53		direct	2057 Feb 17 12:15	9°801'54	
conjunction	2049 May 13 21:33	23°833'24	-1°-40'-29	conjunction	2057 Jun 01 12:44	11°831'54	-1°-29'-28
minimum elong	2049 May 13 21:33	23°833'24	1°40'29	minimum elong	2057 Jun 01 12:44	11°831'54	1°29'28
max. Earth dist.	2049 May 14 16:21	23°835'10	30.82682 AU	max. Earth dist.	2057 Jun 02 03:54	11°833'19	30.85345 AU
retrograde	2049 Aug 29 03:11	26°808'00		retrograde	2057 Sep 16 09:53	14°805'40	
opposition	2049 Nov 16 15:32	24°842'46	-1°-47'00	opposition	2057 Dec 04 08:40	12°840'45	-1°-34'-35
min. Earth dist.	2049 Nov 15 22:54	24°843'56	28.82820 AU	min. Earth dist.	2057 Dec 03 18:50	12°841'44	28.85808 AU
direct	2050 Feb 02 01:13	23°819'02		direct	2058 Feb 19 23:28	11°816'43	

conjunction	2058 Jun 04 02:50	13°II46'49	-1°-27'-26	conjunction	2066 Jun 22 20:21	1°☾45'13	-1°-6'-50
minimum elong	2058 Jun 04 02:50	13°II46'50	1°27'28	minimum elong	2066 Jun 22 20:21	1°☾45'13	1°06'52
max. Earth dist.	2058 Jun 04 16:58	13°II48'09	30.86115 AU	max. Earth dist.	2066 Jun 23 03:08	1°☾45'51	30.90446 AU
retrograde	2058 Sep 18 21:35	16°II20'32		retrograde	2066 Oct 07 01:51	4°☾17'41	
opposition	2058 Dec 06 19:45	14°II55'43	-1°-32'-21	opposition	2066 Dec 24 09:46	2°☾53'13	-1°-9'-50
min. Earth dist.	2058 Dec 06 07:42	14°II56'34	28.86580 AU	min. Earth dist.	2066 Dec 24 03:19	2°☾53'40	28.90811 AU
direct	2059 Feb 22 10:32	13°II31'41		direct	2067 Mar 12 12:41	1°☾28'42	
conjunction	2059 Jun 06 17:03	16°II01'53	-1°-25'-17	conjunction	2067 Jun 25 10:16	3°☾59'16	-1°-3'-47
minimum elong	2059 Jun 06 17:03	16°II01'53	1°25'17	minimum elong	2067 Jun 25 10:16	3°☾59'16	1°03'48
max. Earth dist.	2059 Jun 07 06:50	16°II03'11	30.86873 AU	max. Earth dist.	2067 Jun 25 16:17	3°☾59'50	30.91123 AU
retrograde	2059 Sep 21 10:43	18°II35'30		retrograde	2067 Oct 09 12:01	6°☾31'35	
opposition	2059 Dec 09 06:43	17°II10'46	-1°-29'-58	opposition	2067 Dec 26 20:21	5°☾07'09	-1°-6'-30
min. Earth dist.	2059 Dec 08 18:47	17°II11'37	28.87288 AU	min. Earth dist.	2067 Dec 26 15:22	5°☾07'30	28.91556 AU
direct	2060 Feb 24 23:38	15°II46'43		direct	2068 Mar 13 23:22	3°☾42'36	
conjunction	2060 Jun 08 07:22	18°II17'01	-1°-23'00	conjunction	2068 Jun 27 00:21	6°☾13'13	-1°00'-38
minimum elong	2060 Jun 08 07:22	18°II17'01	1°23'01	minimum elong	2068 Jun 27 00:22	6°☾13'13	1°00'38
max. Earth dist.	2060 Jun 08 19:09	18°II18'07	30.87536 AU	max. Earth dist.	2068 Jun 27 06:10	6°☾13'46	30.91944 AU
retrograde	2060 Sep 22 23:44	20°II50'31		retrograde	2068 Oct 10 23:53	8°☾45'22	
opposition	2060 Dec 10 17:41	19°II25'51	-1°-27'-27	opposition	2068 Dec 28 06:39	7°☾21'01	-1°-3'-5
min. Earth dist.	2060 Dec 10 07:26	19°II26'35	28.87902 AU	min. Earth dist.	2068 Dec 28 01:27	7°☾21'23	28.92429 AU
direct	2061 Feb 26 10:23	18°II01'45		direct	2069 Mar 16 11:23	5°☾56'26	
conjunction	2061 Jun 10 21:48	20°II32'08	-1°-20'-35	conjunction	2069 Jun 29 14:18	8°☾27'08	0°-57'-23
minimum elong	2061 Jun 10 21:49	20°II32'08	1°20'36	minimum elong	2069 Jun 29 14:18	8°☾27'08	0°57'24
max. Earth dist.	2061 Jun 11 09:29	20°II33'13	30.88100 AU	max. Earth dist.	2069 Jun 29 18:41	8°☾27'32	30.92881 AU
retrograde	2061 Sep 25 12:51	23°II05'28		retrograde	2069 Oct 13 11:43	10°☾59'08	
opposition	2061 Dec 13 04:37	21°II40'51	-1°-24'-49	opposition	2069 Dec 30 17:09	9°☾34'53	0°-59'-34
min. Earth dist.	2061 Dec 12 18:58	21°II41'32	28.88405 AU	min. Earth dist.	2069 Dec 30 13:14	9°☾35'10	28.93417 AU
direct	2062 Mar 01 00:25	20°II16'43		direct	2070 Mar 18 21:33	8°☾10'17	
conjunction	2062 Jun 13 11:50	22°II47'08	-1°-18'-3	conjunction	2070 Jul 02 04:15	10°☾41'04	0°-54'-2
minimum elong	2062 Jun 13 11:51	22°II47'08	1°18'05	minimum elong	2070 Jul 02 04:16	10°☾41'04	0°54'03
max. Earth dist.	2062 Jun 13 21:20	22°II48'01	30.88573 AU	max. Earth dist.	2070 Jul 02 08:54	10°☾41'30	30.93906 AU
retrograde	2062 Sep 28 02:46	25°II20'19		retrograde	2070 Oct 15 23:37	13°☾12'56	
opposition	2062 Dec 15 15:29	23°II55'43	-1°-22'-3	opposition	2071 Jan 02 03:34	11°☾48'47	0°-55'-57
min. Earth dist.	2062 Dec 15 06:40	23°II56'21	28.88849 AU	min. Earth dist.	2071 Jan 02 00:10	11°☾49'02	28.94446 AU
direct	2063 Mar 03 12:59	22°II31'30		direct	2071 Mar 21 10:57	10°☾24'12	
conjunction	2063 Jun 16 02:09	25°II01'58	-1°-15'-25	conjunction	2071 Jul 04 18:17	12°☾55'03	0°-50'-37
minimum elong	2063 Jun 16 02:09	25°II01'58	1°15'26	minimum elong	2071 Jul 04 18:17	12°☾55'03	0°50'39
max. Earth dist.	2063 Jun 16 11:45	25°II02'51	30.88997 AU	max. Earth dist.	2071 Jul 04 20:45	12°☾55'17	30.94940 AU
retrograde	2063 Sep 30 13:40	27°II34'58		retrograde	2071 Oct 18 12:57	15°☾26'47	
opposition	2063 Dec 18 02:10	26°II10'24	-1°-19'-10	opposition	2072 Jan 04 13:53	14°☾02'44	0°-52'-15
min. Earth dist.	2063 Dec 17 18:34	26°II10'56	28.89257 AU	min. Earth dist.	2072 Jan 04 11:25	14°☾02'54	28.95466 AU
direct	2064 Mar 05 01:39	24°II46'07		direct	2072 Mar 22 22:47	12°☾38'07	
conjunction	2064 Jun 17 16:17	27°II16'36	-1°-12'-40	conjunction	2072 Jul 06 08:33	15°☾09'04	0°-47'-8
minimum elong	2064 Jun 17 16:18	27°II16'36	1°12'41	minimum elong	2072 Jul 06 08:33	15°☾09'04	0°47'09
max. Earth dist.	2064 Jun 18 00:08	27°II17'19	30.89425 AU	max. Earth dist.	2072 Jul 06 10:52	15°☾09'17	30.95920 AU
retrograde	2064 Oct 02 03:06	29°II49'25		retrograde	2072 Oct 20 00:17	17°☾40'39	
opposition	2064 Dec 19 12:45	28°II24'52	-1°-16'-10	opposition	2073 Jan 06 00:24	16°☾16'42	0°-48'-29
min. Earth dist.	2064 Dec 19 05:17	28°II25'24	28.89697 AU	min. Earth dist.	2073 Jan 05 23:22	16°☾16'46	28.96395 AU
direct	2065 Mar 07 13:48	27°II00'30		direct	2073 Mar 25 11:16	14°☾52'04	
conjunction	2065 Jun 20 06:23	29°II31'01	-1°-9'-48	conjunction	2073 Jul 08 22:30	17°☾23'04	0°-43'-34
minimum elong	2065 Jun 20 06:23	29°II31'01	1°09'49	minimum elong	2073 Jul 08 22:30	17°☾23'04	0°43'35
max. Earth dist.	2065 Jun 20 14:07	29°II31'44	30.89884 AU	max. Earth dist.	2073 Jul 08 22:39	17°☾23'05	30.96808 AU
retrograde	2065 Jul 03 07:07	0°☾		retrograde	2073 Oct 22 13:54	19°☾54'29	
opposition	2065 Oct 04 14:11	2°☾03'39		opposition	2074 Jan 08 10:45	18°☾30'36	0°-44'-39
opposition	2065 Dec 21 23:22	0°☾39'08	-1°-13'-3	min. Earth dist.	2074 Jan 08 10:05	18°☾30'39	28.97233 AU
min. Earth dist.	2065 Dec 21 17:24	0°☾39'33	28.90196 AU	direct	2074 Mar 27 23:45	17°☾05'56	
direct	2066 Jan 14 21:11	30°☾II		conjunction	2074 Jul 11 12:34	19°☾36'59	0°-39'-57
	2066 Mar 10 00:47	29°II14'41		minimum elong	2074 Jul 11 12:34	19°☾36'59	0°39'58
	2066 May 01 21:39	0°☾		max. Earth dist.	2074 Jul 11 12:18	19°☾36'58	30.97596 AU

retrograde	2074 Oct 25 00:55	22° 5 08'14		minimum elong	2082 Jul 30 01:19	7° 0 23'02	0°09'31
opposition	2075 Jan 10 21:09	20° 5 44'24	0°-40'-45	behind sun begin	2082 Jul 29 19:53	7° 0 22'33	
min. Earth dist.	2075 Jan 10 22:22	20° 5 44'19	28.97979 AU	behind sun end	2082 Jul 30 06:45	7° 0 23'31	
direct	2075 Mar 30 11:11	19° 5 19'42		max. Earth dist.	2082 Jul 29 18:04	7° 0 22'23	31.04517 AU
				retrograde	2082 Nov 11 18:29	9° 0 52'57	
conjunction	2075 Jul 14 02:29	21° 5 50'46	0°-36'-17	opposition	2083 Jan 28 06:09	8° 0 29'37	0°-8'-2
minimum elong	2075 Jul 14 02:29	21° 5 50'46	0°36'18	min. Earth dist.	2083 Jan 28 11:46	8° 0 29'13	29.05143 AU
max. Earth dist.	2075 Jul 14 00:41	21° 5 50'36	30.98321 AU	direct	2083 Apr 17 09:31	7° 0 04'39	
retrograde	2075 Oct 27 12:34	24° 5 21'50					
opposition	2076 Jan 13 07:22	22° 5 58'03	0°-36'-47	conjunction	2083 Aug 01 14:48	9° 0 36'02	0°-5'-36
min. Earth dist.	2076 Jan 13 08:31	22° 5 57'58	28.98669 AU	minimum elong	2083 Aug 01 14:48	9° 0 36'02	0°05'37
direct	2076 Mar 31 23:42	21° 5 33'17		behind sun begin	2083 Aug 01 08:28	9° 0 35'28	
				behind sun end	2083 Aug 01 21:08	9° 0 36'35	
conjunction	2076 Jul 15 16:22	24° 5 04'23	0°-32'-33	max. Earth dist.	2083 Aug 01 07:32	9° 0 35'23	31.05765 AU
minimum elong	2076 Jul 15 16:23	24° 5 04'23	0°32'34	retrograde	2083 Nov 14 05:14	12° 0 05'48	
max. Earth dist.	2076 Jul 15 13:32	24° 5 04'08	30.98991 AU	opposition	2084 Jan 30 16:22	10° 0 42'35	0°-3'-49
retrograde	2076 Oct 28 22:21	26° 5 35'16		min. Earth dist.	2084 Jan 30 23:47	10° 0 42'03	29.06386 AU
opposition	2077 Jan 14 17:36	25° 5 11'32	0°-32'-47	direct	2084 Apr 18 21:25	9° 0 17'38	
min. Earth dist.	2077 Jan 14 20:33	25° 5 11'19	28.99340 AU				
direct	2077 Apr 03 10:20	23° 5 46'42		conjunction	2084 Aug 03 04:12	11° 0 49'03	0°-1'-39
				minimum elong	2084 Aug 03 04:11	11° 0 49'03	0°01'39
conjunction	2077 Jul 18 06:09	26° 5 17'50	0°-28'-47	behind sun begin	2084 Aug 02 21:35	11° 0 48'28	
minimum elong	2077 Jul 18 06:09	26° 5 17'50	0°28'48	behind sun end	2084 Aug 03 10:47	11° 0 49'38	
max. Earth dist.	2077 Jul 18 02:49	26° 5 17'31	30.99680 AU	max. Earth dist.	2084 Aug 02 19:26	11° 0 48'16	31.06989 AU
retrograde	2077 Oct 31 09:29	28° 5 48'31		retrograde	2084 Nov 15 17:07	14° 0 18'40	
opposition	2078 Jan 17 03:44	27° 5 24'50	0°-28'-45	asc. node	2084 Dec 31 00:22	13° 0 45'58	
min. Earth dist.	2078 Jan 17 06:34	27° 5 24'38	29.00042 AU	opposition	2085 Feb 01 02:26	12° 0 55'33	0°00'22
direct	2078 Apr 05 22:02	25° 5 59'56		min. Earth dist.	2085 Feb 01 09:47	12° 0 55'02	29.07572 AU
				direct	2085 Apr 21 10:01	11° 0 30'36	
conjunction	2078 Jul 20 19:34	28° 5 31'05	0°-24'-59				
minimum elong	2078 Jul 20 19:34	28° 5 31'05	0°25'00	conjunction	2085 Aug 05 17:36	14° 0 02'04	0°02'24
max. Earth dist.	2078 Jul 20 14:54	28° 5 30'39	31.00414 AU	minimum elong	2085 Aug 05 17:37	14° 0 02'04	0°02'24
	2078 Sep 01 09:26	0° 0		behind sun begin	2085 Aug 05 11:01	14° 0 01'29	
retrograde	2078 Nov 02 19:49	1° 0 01'36		behind sun end	2085 Aug 06 00:12	14° 0 02'39	
	2079 Jan 06 10:09	30° 0 1'36		max. Earth dist.	2085 Aug 05 07:51	14° 0 01'11	31.08122 AU
opposition	2079 Jan 19 13:55	29° 5 37'57	0°-24'-39		2085 Sep 01 10:16	15° 0	
min. Earth dist.	2079 Jan 19 17:57	29° 5 37'40	29.00829 AU	retrograde	2085 Nov 18 03:40	16° 0 31'32	
direct	2079 Apr 08 08:15	28° 5 13'00		opposition	2086 Feb 03 12:47	15° 0 08'29	0°04'34
	2079 Jul 03 05:56	0° 0		min. Earth dist.	2086 Feb 03 21:57	15° 0 07'50	29.08665 AU
					2086 Feb 08 13:34	15° 0 1'00	
conjunction	2079 Jul 23 09:12	0° 0 44'11	0°-21'-9	direct	2086 Apr 23 20:37	13° 0 43'31	
minimum elong	2079 Jul 23 09:12	0° 0 44'11	0°21'11		2086 Jul 04 00:59	15° 0	
max. Earth dist.	2079 Jul 23 04:51	0° 0 43'47	31.01253 AU				
retrograde	2079 Nov 05 06:09	3° 0 14'31		conjunction	2086 Aug 08 06:51	16° 0 14'59	0°06'19
opposition	2080 Jan 21 23:55	1° 0 50'56	0°-20'-32	minimum elong	2086 Aug 08 06:51	16° 0 14'59	0°06'20
min. Earth dist.	2080 Jan 22 04:15	1° 0 50'38	29.01718 AU	behind sun begin	2086 Aug 08 00:38	16° 0 14'26	
direct	2080 Apr 09 21:30	0° 0 25'57		behind sun end	2086 Aug 08 13:03	16° 0 15'32	
				max. Earth dist.	2086 Aug 07 20:17	16° 0 14'02	31.09162 AU
conjunction	2080 Jul 24 22:39	2° 0 57'10	0°-17'-17	retrograde	2086 Nov 20 14:42	18° 0 44'18	
minimum elong	2080 Jul 24 22:39	2° 0 57'10	0°17'18	opposition	2087 Feb 05 22:57	17° 0 21'19	0°08'46
max. Earth dist.	2080 Jul 24 16:32	2° 0 56'37	31.02213 AU	min. Earth dist.	2087 Feb 06 08:19	17° 0 20'39	29.09638 AU
retrograde	2080 Nov 06 18:20	5° 0 27'21		direct	2087 Apr 26 08:45	15° 0 56'19	
opposition	2081 Jan 23 10:03	4° 0 03'50	0°-16'-23				
min. Earth dist.	2081 Jan 23 14:41	4° 0 03'30	29.02754 AU	conjunction	2087 Aug 10 20:07	18° 0 27'47	0°10'13
direct	2081 Apr 12 08:53	2° 0 38'50		minimum elong	2087 Aug 10 20:07	18° 0 27'47	0°10'13
				behind sun begin	2087 Aug 10 14:55	18° 0 27'19	
conjunction	2081 Jul 27 12:02	5° 0 10'06	0°-13'-24	behind sun end	2087 Aug 11 01:19	18° 0 28'15	
minimum elong	2081 Jul 27 12:02	5° 0 10'06	0°13'26	max. Earth dist.	2087 Aug 10 07:51	18° 0 26'39	31.10080 AU
behind sun begin	2081 Jul 27 08:27	5° 0 09'47		retrograde	2087 Nov 23 00:17	20° 0 56'55	
behind sun end	2081 Jul 27 15:37	5° 0 10'25		opposition	2088 Feb 08 09:06	19° 0 33'59	0°12'56
max. Earth dist.	2081 Jul 27 06:27	5° 0 09'36	31.03309 AU	min. Earth dist.	2088 Feb 08 19:56	19° 0 33'13	29.10518 AU
retrograde	2081 Nov 09 04:55	7° 0 40'08		direct	2088 Apr 27 19:21	18° 0 08'56	
opposition	2082 Jan 25 20:11	6° 0 16'43	0°-12'-13				
min. Earth dist.	2082 Jan 26 01:48	6° 0 16'19	29.03902 AU	conjunction	2088 Aug 12 09:24	20° 0 40'24	0°14'06
direct	2082 Apr 14 20:43	4° 0 51'44		minimum elong	2088 Aug 12 09:24	20° 0 40'24	0°14'07
				behind sun begin	2088 Aug 12 06:20	20° 0 40'07	
conjunction	2082 Jul 30 01:19	7° 0 23'02	0°-9'-30	behind sun end	2088 Aug 12 12:27	20° 0 40'40	

max. Earth dist.	2088 Aug 11 21:07	20°039'16	31.10917 AU	max. Earth dist.	2096 Aug 29 20:49	8°00'14"45	31.18547 AU
retrograde	2088 Nov 24 09:36	23°009'21		retrograde	2096 Dec 11 23:19	10°00'44"19	
opposition	2089 Feb 09 19:17	21°046'27	0°17'05	opposition	2097 Feb 27 04:32	9°00'21"56	0°48'47
min. Earth dist.	2089 Feb 10 06:46	21°045'38	29.11316 AU	min. Earth dist.	2097 Feb 27 20:18	9°00'20"50	29.19124 AU
direct	2089 Apr 30 08:09	20°021'22		direct	2097 May 18 05:32	7°00'56"53	
				max. Earth dist.	2097 Sep 01 09:22	10°00'26"50	31.19604 AU
conjunction	2089 Aug 14 22:12	22°052'48	0°17'58				
minimum elong	2089 Aug 14 22:12	22°052'48	0°17'58	conjunction	2097 Sep 02 02:48	10°00'28"27	0°47'26
max. Earth dist.	2089 Aug 14 08:03	22°051'30	31.11695 AU	minimum elong	2097 Sep 02 02:47	10°00'28"27	0°47'25
retrograde	2089 Nov 26 20:51	25°021'35		retrograde	2097 Dec 14 08:15	12°00'56"17	
opposition	2090 Feb 12 05:24	23°058'42	0°21'12	opposition	2098 Mar 01 14:57	11°00'33"59	0°52'28
min. Earth dist.	2090 Feb 12 17:19	23°057'52	29.12094 AU	min. Earth dist.	2098 Mar 02 07:20	11°00'32"51	29.20122 AU
direct	2090 May 02 19:09	22°033'34		direct	2098 May 20 17:31	10°00'08"58	
conjunction	2090 Aug 17 11:09	25°005'00	0°21'48	conjunction	2098 Sep 04 15:04	12°00'40"31	0°50'51
minimum elong	2090 Aug 17 11:09	25°005'00	0°21'49	minimum elong	2098 Sep 04 15:04	12°00'40"31	0°50'51
max. Earth dist.	2090 Aug 16 21:26	25°003'44	31.12468 AU	max. Earth dist.	2098 Sep 03 19:44	12°00'38"44	31.20535 AU
retrograde	2090 Nov 29 06:24	27°033'37		retrograde	2098 Dec 16 19:30	15°00'08"17	
opposition	2091 Feb 14 15:27	26°010'46	0°25'18	opposition	2099 Mar 04 01:11	13°00'46"01	0°56'05
min. Earth dist.	2091 Feb 15 04:31	26°009'51	29.12880 AU	min. Earth dist.	2099 Mar 04 18:03	13°00'44"51	29.20999 AU
direct	2091 May 05 07:17	24°045'35		direct	2099 May 23 03:30	12°00'20"59	
				max. Earth dist.	2099 Sep 06 08:22	14°00'50"47	31.21332 AU
conjunction	2091 Aug 19 23:52	27°017'00	0°25'37				
minimum elong	2091 Aug 19 23:52	27°017'00	0°25'36	conjunction	2099 Sep 07 03:29	14°00'52"33	0°54'12
max. Earth dist.	2091 Aug 19 08:31	27°015'36	31.13282 AU	minimum elong	2099 Sep 07 03:29	14°00'52"33	0°54'11
retrograde	2091 Dec 01 18:49	29°045'28		retrograde	2099 Dec 19 04:39	17°00'20"12	
opposition	2092 Feb 17 01:31	28°022'39	0°29'20	opposition	2100 Mar 06 11:42	15°00'57"59	0°59'37
min. Earth dist.	2092 Feb 17 14:16	28°021'46	29.13732 AU	min. Earth dist.	2100 Mar 07 05:53	15°00'56"43	29.21725 AU
direct	2092 May 06 20:20	26°057'27		direct	2100 May 25 15:39	14°00'32'57	
conjunction	2092 Aug 21 12:34	29°028'52	0°29'22	conjunction	2100 Sep 09 15:32	17°00'04"28	0°57'27
minimum elong	2092 Aug 21 12:34	29°028'52	0°29'23	minimum elong	2100 Sep 09 15:32	17°00'04"28	0°57'28
max. Earth dist.	2092 Aug 20 21:39	29°027'30	31.14166 AU	max. Earth dist.	2100 Sep 08 18:40	17°00'02"32	31.21997 AU
	2092 Sep 04 14:47	0°00'		retrograde	2100 Dec 21 16:30	19°00'32'00	
retrograde	2092 Dec 03 04:42	1°00'57"12					
opposition	2093 Feb 18 11:45	0°00'34"26	0°33'20				
min. Earth dist.	2093 Feb 19 01:48	0°00'33"27	29.14675 AU				
	2093 Mar 11 13:33	30°00'00"					
direct	2093 May 09 08:22	29°009'14					
	2093 Jul 05 12:44	0°00'					
max. Earth dist.	2093 Aug 23 09:17	1°00'39"13	31.15170 AU				
conjunction	2093 Aug 24 01:05	1°00'40'40	0°33'06				
minimum elong	2093 Aug 24 01:05	1°00'40'40	0°33'05				
retrograde	2093 Dec 05 16:15	4°00'08'53					
opposition	2094 Feb 20 21:49	2°00'46'12	0°37'17				
min. Earth dist.	2094 Feb 21 11:09	2°00'45'16	29.15731 AU				
direct	2094 May 11 20:52	1°00'21'01					
conjunction	2094 Aug 26 13:31	3°00'52'29	0°36'46				
minimum elong	2094 Aug 26 13:31	3°00'52'29	0°36'46				
max. Earth dist.	2094 Aug 25 21:26	3°00'51'00	31.16266 AU				
retrograde	2094 Dec 08 02:49	6°00'20'36					
opposition	2095 Feb 23 08:04	4°00'58'01	0°41'11				
min. Earth dist.	2095 Feb 23 22:46	4°00'56'59	29.16867 AU				
direct	2095 May 14 07:29	3°00'32'53					
max. Earth dist.	2095 Aug 28 09:37	6°00'02'52	31.17421 AU				
conjunction	2095 Aug 29 02:02	6°00'04'23	0°40'23				
minimum elong	2095 Aug 29 02:02	6°00'04'23	0°40'22				
retrograde	2095 Dec 10 13:40	8°00'32'24					
opposition	2096 Feb 25 18:10	7°00'09'56	0°45'01				
min. Earth dist.	2096 Feb 26 08:48	7°00'08'54	29.18015 AU				
direct	2096 May 15 19:19	5°00'44'50					
conjunction	2096 Aug 30 14:28	8°00'16'23	0°43'56				
minimum elong	2096 Aug 30 14:28	8°00'16'23	0°43'57				

opposition	2100 Mar 06 11:42	15° \mathring{M} 57'59	0°59'37	conjunction	2107 Sep 26 00:57	2° \mathring{A} 22'40	1°17'38
min. Earth dist.	2100 Mar 07 05:53	15° \mathring{M} 56'43	29.21725 AU	minimum elong	2107 Sep 26 00:56	2° \mathring{A} 22'40	1°17'38
direct	2100 May 25 15:39	14° \mathring{M} 32'57		retrograde	2108 Jan 06 14:02	4° \mathring{A} 49'29	
				opposition	2108 Mar 23 23:10	3° \mathring{A} 27'24	1°24'14
conjunction	2100 Sep 09 15:32	17° \mathring{M} 04'28	0°57'27	min. Earth dist.	2108 Mar 24 18:51	3° \mathring{A} 26'02	29.26648 AU
minimum elong	2100 Sep 09 15:32	17° \mathring{M} 04'28	0°57'28	direct	2108 Jun 12 15:28	2° \mathring{A} 02'18	
max. Earth dist.	2100 Sep 08 18:40	17° \mathring{M} 02'32	31.21997 AU				
retrograde	2100 Dec 21 16:30	19° \mathring{M} 32'00		conjunction	2108 Sep 27 12:15	4° \mathring{A} 33'32	1°20'06
opposition	2101 Mar 08 22:04	18° \mathring{M} 09'47	1°03'03	minimum elong	2108 Sep 27 12:15	4° \mathring{A} 33'32	1°20'07
min. Earth dist.	2101 Mar 09 16:04	18° \mathring{M} 08'32	29.22339 AU	max. Earth dist.	2108 Sep 26 14:45	4° \mathring{A} 31'32	31.26972 AU
direct	2101 May 28 04:55	16° \mathring{M} 44'43		retrograde	2109 Jan 07 22:43	7° \mathring{A} 00'19	
max. Earth dist.	2101 Sep 11 07:03	19° \mathring{M} 14'18	31.22554 AU	opposition	2109 Mar 26 09:54	5° \mathring{A} 38'19	1°26'49
				min. Earth dist.	2109 Mar 27 06:31	5° \mathring{A} 36'53	29.27449 AU
conjunction	2101 Sep 12 03:39	19° \mathring{M} 16'13	1°00'38	direct	2109 Jun 15 03:05	4° \mathring{A} 13'16	
minimum elong	2101 Sep 12 03:39	19° \mathring{M} 16'13	1°00'37				
retrograde	2101 Dec 24 01:51	21° \mathring{M} 43'37		conjunction	2109 Sep 29 23:25	6° \mathring{A} 44'29	1°22'27
opposition	2102 Mar 11 08:32	20° \mathring{M} 21'24	1°06'24	minimum elong	2109 Sep 29 23:25	6° \mathring{A} 44'29	1°22'27
min. Earth dist.	2102 Mar 12 04:04	20° \mathring{M} 20'03	29.22866 AU	max. Earth dist.	2109 Sep 29 00:40	6° \mathring{A} 42'22	31.27751 AU
direct	2102 May 30 16:54	18° \mathring{M} 56'18		retrograde	2110 Jan 10 10:19	9° \mathring{A} 11'14	
				opposition	2110 Mar 28 20:29	7° \mathring{A} 49'17	1°29'15
conjunction	2102 Sep 14 15:26	21° \mathring{M} 27'44	1°03'43	min. Earth dist.	2110 Mar 29 16:36	7° \mathring{A} 47'53	29.28197 AU
minimum elong	2102 Sep 14 15:26	21° \mathring{M} 27'44	1°03'44	direct	2110 Jun 17 14:48	6° \mathring{A} 24'17	
max. Earth dist.	2102 Sep 13 17:54	21° \mathring{M} 25'45	31.23057 AU				
retrograde	2102 Dec 26 13:04	23° \mathring{M} 55'00		conjunction	2110 Oct 02 10:43	8° \mathring{A} 55'29	1°24'40
opposition	2103 Mar 13 18:51	22° \mathring{M} 32'48	1°09'39	minimum elong	2110 Oct 02 10:43	8° \mathring{A} 55'29	1°24'41
min. Earth dist.	2103 Mar 14 13:47	22° \mathring{M} 31'29	29.23349 AU	max. Earth dist.	2110 Oct 01 12:24	8° \mathring{A} 53'25	31.28436 AU
direct	2103 Jun 02 06:15	21° \mathring{M} 07'39		retrograde	2111 Jan 12 20:00	11° \mathring{A} 22'13	
max. Earth dist.	2103 Sep 16 05:29	23° \mathring{M} 37'02	31.23527 AU	opposition	2111 Mar 31 07:23	10° \mathring{A} 00'18	1°31'34
				min. Earth dist.	2111 Apr 01 04:55	9° \mathring{A} 58'49	29.28829 AU
conjunction	2103 Sep 17 03:13	23° \mathring{M} 39'02	1°06'42	direct	2111 Jun 20 01:58	8° \mathring{A} 35'20	
minimum elong	2103 Sep 17 03:13	23° \mathring{M} 39'02	1°06'42				
retrograde	2103 Dec 28 23:29	26° \mathring{M} 06'11		conjunction	2111 Oct 04 21:51	11° \mathring{A} 06'32	1°26'47
opposition	2104 Mar 15 05:17	24° \mathring{M} 43'58	1°12'47	minimum elong	2111 Oct 04 21:51	11° \mathring{A} 06'31	1°26'46
min. Earth dist.	2104 Mar 16 01:20	24° \mathring{M} 42'34	29.23846 AU	max. Earth dist.	2111 Oct 03 22:43	11° \mathring{A} 04'23	31.29002 AU
direct	2104 Jun 03 18:16	23° \mathring{M} 18'48		retrograde	2112 Jan 15 07:18	13° \mathring{A} 33'13	
				opposition	2112 Apr 01 18:09	12° \mathring{A} 11'20	1°33'45
conjunction	2104 Sep 18 14:50	25° \mathring{M} 50'07	1°09'36	min. Earth dist.	2112 Apr 02 15:01	12° \mathring{A} 09'53	29.29326 AU
minimum elong	2104 Sep 18 14:50	25° \mathring{M} 50'07	1°09'36	direct	2112 Jun 21 15:08	10° \mathring{A} 46'23	
max. Earth dist.	2104 Sep 17 17:14	25° \mathring{M} 48'07	31.24051 AU	max. Earth dist.	2112 Oct 05 09:34	13° \mathring{A} 15'22	31.29426 AU
retrograde	2104 Dec 30 09:25	28° \mathring{M} 17'08					
opposition	2105 Mar 17 15:45	26° \mathring{M} 54'56	1°15'49	conjunction	2112 Oct 06 09:00	13° \mathring{A} 17'33	1°28'45
min. Earth dist.	2105 Mar 18 11:11	26° \mathring{M} 53'35	29.24406 AU	minimum elong	2112 Oct 06 09:00	13° \mathring{A} 17'33	1°28'46
direct	2105 Jun 06 07:32	25° \mathring{M} 29'45		retrograde	2113 Jan 16 18:19	15° \mathring{A} 44'12	
max. Earth dist.	2105 Sep 20 03:57	27° \mathring{M} 58'58	31.24654 AU	opposition	2113 Apr 04 05:09	14° \mathring{A} 22'19	1°35'47
				min. Earth dist.	2113 Apr 05 03:09	14° \mathring{A} 20'48	29.29700 AU
conjunction	2105 Sep 21 02:08	28° \mathring{M} 01'01	1°12'23	direct	2113 Jun 24 03:09	12° \mathring{A} 57'24	
minimum elong	2105 Sep 21 02:08	28° \mathring{M} 01'01	1°12'22				
	2105 Nov 21 23:04	0° \mathring{A}		conjunction	2113 Oct 08 19:50	15° \mathring{A} 28'30	1°30'36
retrograde	2106 Jan 01 18:37	0° \mathring{A} 27'58		minimum elong	2113 Oct 08 19:50	15° \mathring{A} 28'30	1°30'36
	2106 Feb 12 12:21	30° \mathring{R} \mathring{M}		max. Earth dist.	2113 Oct 07 20:29	15° \mathring{A} 26'20	31.29740 AU
opposition	2106 Mar 20 02:15	29° \mathring{M} 05'47	1°18'44	retrograde	2114 Jan 19 04:15	17° \mathring{A} 55'06	
min. Earth dist.	2106 Mar 20 22:04	29° \mathring{M} 04'24	29.25076 AU	opposition	2114 Apr 06 16:01	16° \mathring{A} 33'13	1°37'42
direct	2106 Jun 08 17:54	27° \mathring{M} 40'36		min. Earth dist.	2114 Apr 07 13:38	16° \mathring{A} 31'44	29.29951 AU
	2106 Sep 18 05:59	0° \mathring{A}		direct	2114 Jun 26 16:52	15° \mathring{A} 08'18	
				max. Earth dist.	2114 Oct 10 06:29	17° \mathring{A} 37'06	31.29944 AU
conjunction	2106 Sep 23 13:37	0° \mathring{A} 11'51	1°15'04				
minimum elong	2106 Sep 23 13:37	0° \mathring{A} 11'51	1°15'04	conjunction	2114 Oct 11 06:40	17° \mathring{A} 39'21	1°32'19
max. Earth dist.	2106 Sep 22 16:20	0° \mathring{A} 09'52	31.25370 AU	minimum elong	2114 Oct 11 06:40	17° \mathring{A} 39'21	1°32'20
retrograde	2107 Jan 04 02:59	2° \mathring{A} 38'42		retrograde	2115 Jan 21 13:35	20° \mathring{A} 05'54	
opposition	2107 Mar 22 12:38	1° \mathring{A} 16'34	1°21'33	opposition	2115 Apr 09 02:50	18° \mathring{A} 44'01	1°39'28
min. Earth dist.	2107 Mar 23 08:33	1° \mathring{A} 15'11	29.25829 AU	min. Earth dist.	2115 Apr 10 00:58	18° \mathring{A} 42'29	29.30132 AU
	2107 May 18 21:54	30° \mathring{R} \mathring{M}		direct	2115 Jun 29 03:40	17° \mathring{A} 19'05	
direct	2107 Jun 11 05:47	29° \mathring{M} 51'26					
	2107 Jul 04 06:30	0° \mathring{A}		conjunction	2115 Oct 13 17:28	19° \mathring{A} 50'04	1°33'55
max. Earth dist.	2107 Sep 25 02:31	2° \mathring{A} 20'35	31.26160 AU	minimum elong	2115 Oct 13 17:27	19° \mathring{A} 50'04	1°33'54

max. Earth dist.	2115 Oct 12 18:18	19° 2 47'54	31.30101 AU	minimum elong	2123 Oct 31 03:57	7° M 14'12	1°41'37
retrograde	2116 Jan 23 21:36	22° 2 16'33		retrograde	2124 Feb 10 08:07	9° M 40'45	
opposition	2116 Apr 10 13:50	20° 2 54'39	1°41'06	opposition	2124 Apr 28 07:27	8° M 18'57	1°48'44
min. Earth dist.	2116 Apr 11 11:58	20° 2 53'08	29.30278 AU	min. Earth dist.	2124 Apr 29 03:53	8° M 17'34	29.33140 AU
direct	2116 Jun 30 16:20	19° 2 29'43		direct	2124 Jul 18 11:35	6° M 54'23	
max. Earth dist.	2116 Oct 14 03:53	21° 2 58'23	31.30257 AU				
conjunction	2116 Oct 15 03:49	22° 2 00'37	1°35'22	conjunction	2124 Nov 01 14:08	9° M 24'55	1°41'57
minimum elong	2116 Oct 15 03:49	22° 2 00'37	1°35'23	minimum elong	2124 Nov 01 14:08	9° M 24'55	1°41'57
retrograde	2117 Jan 25 08:17	24° 2 27'05		max. Earth dist.	2124 Oct 31 17:15	9° M 22'58	31.33089 AU
opposition	2117 Apr 13 00:49	23° 2 05'09	1°42'35	retrograde	2125 Feb 11 17:04	11° M 51'29	
min. Earth dist.	2117 Apr 13 22:13	23° 2 03'41	29.30472 AU	opposition	2125 Apr 30 19:07	10° M 29'42	1°49'00
direct	2117 Jul 03 02:30	21° 2 40'13		min. Earth dist.	2125 May 01 15:38	10° M 28'18	29.33236 AU
				direct	2125 Jul 21 01:07	9° M 05'09	
conjunction	2117 Oct 17 14:21	24° 2 11'03	1°36'41	max. Earth dist.	2125 Nov 03 02:19	11° M 33'34	31.33116 AU
minimum elong	2117 Oct 17 14:21	24° 2 11'03	1°36'41	conjunction	2125 Nov 04 00:14	11° M 35'37	1°42'07
max. Earth dist.	2117 Oct 16 15:49	24° 2 08'57	31.30481 AU	minimum elong	2125 Nov 04 00:14	11° M 35'37	1°42'07
retrograde	2118 Jan 27 16:01	26° 2 37'29		retrograde	2126 Feb 14 04:10	14° M 02'11	
opposition	2118 Apr 15 11:49	25° 2 15'33	1°43'55	opposition	2126 May 03 06:33	12° M 40'22	1°49'07
min. Earth dist.	2118 Apr 16 09:36	25° 2 14'04	29.30746 AU	min. Earth dist.	2126 May 04 02:33	12° M 39'00	29.33197 AU
direct	2118 Jul 05 14:10	23° 2 50'39		direct	2126 Jul 23 12:04	11° M 15'50	
max. Earth dist.	2118 Oct 19 01:32	26° 2 19'16	31.30813 AU				
conjunction	2118 Oct 20 00:40	26° 2 21'25	1°37'52	conjunction	2126 Nov 06 10:26	13° M 46'13	1°42'09
minimum elong	2118 Oct 20 00:40	26° 2 21'25	1°37'53	minimum elong	2126 Nov 06 10:26	13° M 46'13	1°42'10
retrograde	2119 Jan 30 02:52	28° 2 47'51		max. Earth dist.	2126 Nov 05 13:35	13° M 44'16	31.33004 AU
opposition	2119 Apr 17 22:49	27° 2 25'56	1°45'06		2126 Dec 10 18:17	15° M	
min. Earth dist.	2119 Apr 18 19:20	27° 2 24'32	29.31126 AU	retrograde	2127 Feb 16 12:05	16° M 12'49	
direct	2119 Jul 08 01:01	26° 2 01'04			2127 Apr 30 05:04	15° R M	
conjunction	2119 Oct 22 11:03	28° 2 31'49	1°38'54	opposition	2127 May 05 18:18	14° M 50'57	1°49'04
minimum elong	2119 Oct 22 11:02	28° 2 31'49	1°38'54	min. Earth dist.	2127 May 06 14:56	14° M 49'33	29.33020 AU
max. Earth dist.	2119 Oct 21 13:03	28° 2 29'46	31.31231 AU	direct	2127 Jul 26 00:15	13° M 26'26	
	2119 Dec 03 13:43	0° M			2127 Oct 13 22:44	15° M	
retrograde	2120 Feb 01 12:20	0° M 58'16		conjunction	2127 Nov 08 20:16	15° M 56'43	1°42'02
	2120 Apr 04 19:52	30° R 2		minimum elong	2127 Nov 08 20:16	15° M 56'43	1°42'02
opposition	2120 Apr 19 10:02	29° 2 36'22	1°46'08	max. Earth dist.	2127 Nov 07 22:51	15° M 54'42	31.32787 AU
min. Earth dist.	2120 Apr 20 07:17	29° 2 34'55	29.31581 AU	retrograde	2128 Feb 18 22:35	18° M 23'19	
direct	2120 Jul 09 10:49	28° 2 11'34		opposition	2128 May 07 05:55	17° M 01'25	1°48'52
	2120 Oct 04 17:58	0° M		min. Earth dist.	2128 May 08 01:19	17° M 00'05	29.32766 AU
conjunction	2120 Oct 23 21:17	0° M 42'17	1°39'48	direct	2128 Jul 27 11:22	15° M 36'53	
minimum elong	2120 Oct 23 21:17	0° M 42'16	1°39'49	max. Earth dist.	2128 Nov 09 09:50	18° M 05'10	31.32511 AU
max. Earth dist.	2120 Oct 22 23:19	0° M 40'13	31.31716 AU	conjunction	2128 Nov 10 06:08	18° M 07'05	1°41'47
retrograde	2121 Feb 02 23:44	3° M 08'45		minimum elong	2128 Nov 10 06:08	18° M 07'05	1°41'48
opposition	2121 Apr 21 21:12	1° M 46'54	1°47'01	retrograde	2129 Feb 20 07:58	20° M 33'42	
min. Earth dist.	2121 Apr 22 17:13	1° M 45'32	29.32069 AU	opposition	2129 May 09 17:42	19° M 11'45	1°48'31
direct	2121 Jul 11 23:42	0° M 22'10		min. Earth dist.	2129 May 10 13:41	19° M 10'23	29.32495 AU
max. Earth dist.	2121 Oct 25 09:40	2° M 50'48	31.32190 AU	direct	2129 Jul 29 21:27	17° M 47'13	
conjunction	2121 Oct 26 07:26	2° M 52'50	1°40'34	conjunction	2129 Nov 12 15:44	20° M 17'19	1°41'23
minimum elong	2121 Oct 26 07:26	2° M 52'50	1°40'33	minimum elong	2129 Nov 12 15:44	20° M 17'19	1°41'22
retrograde	2122 Feb 05 11:23	5° M 19'21		max. Earth dist.	2129 Nov 11 19:53	20° M 15'28	31.32260 AU
opposition	2122 Apr 24 08:34	3° M 57'31	1°47'45	retrograde	2130 Feb 22 18:52	22° M 43'59	
min. Earth dist.	2122 Apr 25 05:18	3° M 56'06	29.32528 AU	opposition	2130 May 12 05:22	21° M 21'59	1°48'01
direct	2122 Jul 14 11:16	2° M 32'51		min. Earth dist.	2130 May 12 23:40	21° M 20'45	29.32262 AU
conjunction	2122 Oct 28 17:43	5° M 03'29	1°41'10	direct	2130 Aug 01 10:21	19° M 57'29	
minimum elong	2122 Oct 28 17:43	5° M 03'29	1°41'10	max. Earth dist.	2130 Nov 14 06:01	22° M 25'43	31.32058 AU
max. Earth dist.	2122 Oct 27 20:25	5° M 01'30	31.32610 AU	conjunction	2130 Nov 15 01:23	22° M 27'31	1°40'50
retrograde	2123 Feb 07 21:31	7° M 30'01		minimum elong	2130 Nov 15 01:23	22° M 27'31	1°40'50
opposition	2123 Apr 26 19:52	6° M 08'13	1°48'19	retrograde	2131 Feb 25 06:27	24° M 54'15	
min. Earth dist.	2123 Apr 27 16:03	6° M 06'50	29.32890 AU	opposition	2131 May 14 17:07	23° M 32'13	1°47'21
direct	2123 Jul 17 00:41	4° M 43'36		min. Earth dist.	2131 May 15 11:31	23° M 30'59	29.32109 AU
max. Earth dist.	2123 Oct 30 05:58	7° M 12'09	31.32914 AU	direct	2131 Aug 03 21:20	22° M 07'46	
conjunction	2123 Oct 31 03:57	7° M 14'12	1°41'38	conjunction	2131 Nov 17 11:02	24° M 37'46	1°40'08
				minimum elong	2131 Nov 17 11:02	24° M 37'46	1°40'08

max. Earth dist.	2131 Nov 16 16:54	24° ℓ 36'04	31.31955 AU	max. Earth dist.	2139 Dec 04 00:39	12° ♊ 02'32	31.29801 AU
retrograde	2132 Feb 27 16:44	27° ℓ 04'33		retrograde	2140 Mar 16 05:31	14° ♊ 31'27	
opposition	2132 May 16 05:01	25° ℓ 42'33	1°46'33	opposition	2140 Jun 03 06:36	13° ♊ 09'16	1°34'38
min. Earth dist.	2132 May 16 22:08	25° ℓ 41'23	29.32029 AU	min. Earth dist.	2140 Jun 03 20:45	13° ♊ 08'19	29.29509 AU
direct	2132 Aug 05 10:10	24° ℓ 18'09		direct	2140 Aug 23 05:32	11° ♊ 45'14	
				max. Earth dist.	2140 Dec 05 11:20	14° ♊ 13'25	31.29039 AU
conjunction	2132 Nov 18 20:26	26° ℓ 48'07	1°39'18				
minimum elong	2132 Nov 18 20:26	26° ℓ 48'07	1°39'19	conjunction	2140 Dec 06 00:50	14° ♊ 14'42	1°27'36
max. Earth dist.	2132 Nov 18 02:16	26° ℓ 46'24	31.31910 AU	minimum elong	2140 Dec 06 00:51	14° ♊ 14'42	1°27'37
retrograde	2133 Mar 01 04:00	29° ℓ 15'00		retrograde	2141 Mar 18 15:36	16° ♊ 42'17	
opposition	2133 May 18 16:58	27° ℓ 53'00	1°45'34	opposition	2141 Jun 05 18:58	15° ♊ 20'00	1°32'31
min. Earth dist.	2133 May 19 09:43	27° ℓ 51'52	29.32007 AU	min. Earth dist.	2141 Jun 06 07:54	15° ♊ 19'08	29.28713 AU
direct	2133 Aug 07 20:50	26° ℓ 28'41		direct	2141 Aug 25 18:19	13° ♊ 55'57	
conjunction	2133 Nov 21 06:06	28° ℓ 58'37	1°38'19	conjunction	2141 Dec 08 10:06	16° ♊ 25'18	1°25'34
minimum elong	2133 Nov 21 06:06	28° ℓ 58'37	1°38'19	minimum elong	2141 Dec 08 10:06	16° ♊ 25'18	1°25'33
max. Earth dist.	2133 Nov 20 13:35	28° ℓ 57'04	31.31890 AU	max. Earth dist.	2141 Dec 07 20:31	16° ♊ 24'02	31.28248 AU
	2133 Dec 19 06:58	0° ♊		retrograde	2142 Mar 21 03:21	18° ♊ 52'58	
retrograde	2134 Mar 03 13:37	1° ♊ 25'36		opposition	2142 Jun 08 07:13	17° ♊ 30'36	1°30'16
opposition	2134 May 21 04:51	0° ♊ 03'37	1°44'27	min. Earth dist.	2142 Jun 08 19:35	17° ♊ 29'45	29.27945 AU
min. Earth dist.	2134 May 21 21:19	0° ♊ 02'30	29.31966 AU	direct	2142 Aug 28 05:39	16° ♊ 06'32	
	2134 May 23 10:18	30° ♋					
direct	2134 Aug 10 10:16	28° ℓ 39'24		conjunction	2142 Dec 10 19:29	18° ♊ 35'48	1°23'24
	2134 Oct 22 16:19	0° ♊		minimum elong	2142 Dec 10 19:30	18° ♊ 35'48	1°23'24
				max. Earth dist.	2142 Dec 10 07:55	18° ♊ 34'43	31.27508 AU
conjunction	2134 Nov 23 15:38	1° ♊ 09'18	1°37'12	retrograde	2143 Mar 23 13:32	21° ♊ 03'32	
minimum elong	2134 Nov 23 15:38	1° ♊ 09'18	1°37'12	opposition	2143 Jun 10 19:42	19° ♊ 41'06	1°27'54
max. Earth dist.	2134 Nov 22 22:32	1° ♊ 07'42	31.31834 AU	min. Earth dist.	2143 Jun 11 07:13	19° ♊ 40'19	29.27237 AU
retrograde	2135 Mar 06 01:41	3° ♊ 36'23		direct	2143 Aug 30 19:24	18° ♊ 17'03	
opposition	2135 May 23 16:56	2° ♊ 14'25	1°43'10				
min. Earth dist.	2135 May 24 08:26	2° ♊ 13'22	29.31876 AU	conjunction	2143 Dec 13 04:33	20° ♊ 46'15	1°21'07
direct	2135 Aug 12 21:14	0° ♊ 50'15		minimum elong	2143 Dec 13 04:33	20° ♊ 46'15	1°21'06
max. Earth dist.	2135 Nov 25 09:33	3° ♊ 18'39	31.31692 AU	max. Earth dist.	2143 Dec 12 16:58	20° ♊ 45'09	31.26859 AU
				retrograde	2144 Mar 25 01:28	23° ♊ 14'05	
conjunction	2135 Nov 26 01:14	3° ♊ 20'07	1°35'56	opposition	2144 Jun 12 08:09	21° ♊ 51'35	1°25'24
minimum elong	2135 Nov 26 01:15	3° ♊ 20'07	1°35'55	min. Earth dist.	2144 Jun 12 18:02	21° ♊ 50'55	29.26638 AU
retrograde	2136 Mar 07 09:54	5° ♊ 47'19		direct	2144 Sep 01 06:26	20° ♊ 27'35	
opposition	2136 May 25 05:17	4° ♊ 25'21	1°41'45				
min. Earth dist.	2136 May 25 21:09	4° ♊ 24'16	29.31676 AU	conjunction	2144 Dec 14 13:53	22° ♊ 56'44	1°18'43
direct	2136 Aug 14 09:16	3° ♊ 01'15		minimum elong	2144 Dec 14 13:53	22° ♊ 56'44	1°18'44
				max. Earth dist.	2144 Dec 14 04:10	22° ♊ 55'49	31.26304 AU
conjunction	2136 Nov 27 10:48	5° ♊ 31'03	1°34'32	retrograde	2145 Mar 27 10:22	25° ♊ 24'41	
minimum elong	2136 Nov 27 10:48	5° ♊ 31'03	1°34'32	opposition	2145 Jun 14 20:38	24° ♊ 02'10	1°22'46
max. Earth dist.	2136 Nov 26 18:42	5° ♊ 29'33	31.31440 AU	min. Earth dist.	2145 Jun 15 06:21	24° ♊ 01'30	29.26118 AU
retrograde	2137 Mar 09 20:49	7° ♊ 58'21		direct	2145 Sep 03 18:30	22° ♊ 38'13	
opposition	2137 May 27 17:27	6° ♊ 36'21	1°40'11				
min. Earth dist.	2137 May 28 08:02	6° ♊ 35'22	29.31353 AU	conjunction	2145 Dec 16 23:01	25° ♊ 07'18	1°16'11
direct	2137 Aug 16 20:05	5° ♊ 12'18		minimum elong	2145 Dec 16 23:01	25° ♊ 07'18	1°16'11
				max. Earth dist.	2145 Dec 16 13:32	25° ♊ 06'25	31.25827 AU
conjunction	2137 Nov 29 20:26	7° ♊ 42'03	1°32'59	retrograde	2146 Mar 29 21:43	27° ♊ 35'24	
minimum elong	2137 Nov 29 20:26	7° ♊ 42'03	1°32'59	opposition	2146 Jun 17 09:04	26° ♊ 12'52	1°20'01
max. Earth dist.	2137 Nov 29 05:09	7° ♊ 40'36	31.31037 AU	min. Earth dist.	2146 Jun 17 16:59	26° ♊ 12'20	29.25648 AU
retrograde	2138 Mar 12 06:47	10° ♊ 09'26		direct	2146 Sep 06 05:37	24° ♊ 48'58	
opposition	2138 May 30 05:51	8° ♊ 47'23	1°38'28				
min. Earth dist.	2138 May 30 21:11	8° ♊ 46'21	29.30873 AU	conjunction	2146 Dec 19 08:15	27° ♊ 18'02	1°13'33
direct	2138 Aug 19 06:09	7° ♊ 23'22		minimum elong	2146 Dec 19 08:15	27° ♊ 18'02	1°13'34
				max. Earth dist.	2146 Dec 19 00:00	27° ♊ 17'16	31.25358 AU
conjunction	2138 Dec 02 05:59	9° ♊ 53'01	1°31'19	retrograde	2147 Apr 01 08:10	29° ♊ 46'17	
minimum elong	2138 Dec 02 05:59	9° ♊ 53'01	1°31'20	opposition	2147 Jun 19 21:48	28° ♊ 23'44	1°17'08
max. Earth dist.	2138 Dec 01 15:00	9° ♊ 51'37	31.30490 AU	min. Earth dist.	2147 Jun 20 06:01	28° ♊ 23'11	29.25175 AU
retrograde	2139 Mar 14 17:41	12° ♊ 20'29		direct	2147 Sep 08 15:47	26° ♊ 59'56	
opposition	2139 Jun 01 18:06	10° ♊ 58'23	1°36'37				
min. Earth dist.	2139 Jun 02 08:01	10° ♊ 57'26	29.30242 AU	conjunction	2147 Dec 21 17:34	29° ♊ 28'57	1°10'49
direct	2139 Aug 21 19:06	9° ♊ 34'21		minimum elong	2147 Dec 21 17:34	29° ♊ 28'57	1°10'48
				max. Earth dist.	2147 Dec 21 10:10	29° ♊ 28'15	31.24882 AU
conjunction	2139 Dec 04 15:30	12° ♊ 03'55	1°29'32				
minimum elong	2139 Dec 04 15:30	12° ♊ 03'56	1°29'31	retrograde	2148 Jan 04 12:14	0° ♋	
					2148 Apr 02 19:34	1° ♋ 57'21	

opposition	2148 Jun 21 10:29	0°☾34'47	1°14'09	min. Earth dist.	2156 Jul 09 18:43	18°☾05'44	29.17587 AU
min. Earth dist.	2148 Jun 21 16:58	0°☾34'21	29.24662 AU	direct	2156 Sep 28 00:56	16°☾42'14	
	2148 Jul 13 13:32	30°☾					
direct	2148 Sep 10 03:40	29°☾11'03		conjunction	2157 Jan 09 05:54	19°☾10'45	0°42'04
	2148 Nov 04 16:54	0°☾		minimum elong	2157 Jan 09 05:54	19°☾10'45	0°42'05
				max. Earth dist.	2157 Jan 09 05:51	19°☾10'45	31.17172 AU
conjunction	2148 Dec 23 02:49	1°☾40'02	1°07'58	retrograde	2157 Apr 23 02:35	21°☾40'24	
minimum elong	2148 Dec 23 02:49	1°☾40'02	1°07'58	opposition	2157 Jul 12 06:28	20°☾17'14	0°43'02
max. Earth dist.	2148 Dec 22 19:39	1°☾39'22	31.24330 AU	min. Earth dist.	2157 Jul 12 05:26	20°☾17'18	29.16809 AU
retrograde	2149 Apr 05 08:03	4°☾08'37		direct	2157 Sep 30 12:38	18°☾53'42	
opposition	2149 Jun 23 23:23	2°☾46'01	1°11'03				
min. Earth dist.	2149 Jun 24 06:02	2°☾45'34	29.24068 AU	conjunction	2158 Jan 11 15:16	21°☾22'11	0°38'30
direct	2149 Sep 12 13:09	1°☾22'20		minimum elong	2158 Jan 11 15:16	21°☾22'11	0°38'30
				max. Earth dist.	2158 Jan 11 15:38	21°☾22'13	31.16437 AU
conjunction	2149 Dec 25 12:20	3°☾51'17	1°05'02	retrograde	2158 Apr 25 14:33	23°☾52'00	
minimum elong	2149 Dec 25 12:21	3°☾51'17	1°05'01	opposition	2158 Jul 14 19:23	22°☾28'48	0°39'12
max. Earth dist.	2149 Dec 25 06:26	3°☾50'44	31.23682 AU	min. Earth dist.	2158 Jul 14 18:10	22°☾28'53	29.16115 AU
retrograde	2150 Apr 07 19:00	6°☾20'01		direct	2158 Oct 02 21:31	21°☾05'19	
opposition	2150 Jun 26 12:04	4°☾57'23	1°07'52				
min. Earth dist.	2150 Jun 26 17:38	4°☾57'00	29.23344 AU	conjunction	2159 Jan 14 00:48	23°☾33'47	0°34'52
direct	2150 Sep 15 01:11	3°☾33'44		minimum elong	2159 Jan 14 00:48	23°☾33'47	0°34'53
				max. Earth dist.	2159 Jan 14 03:00	23°☾33'59	31.15776 AU
conjunction	2150 Dec 27 21:46	6°☾02'39	1°01'59	retrograde	2159 Apr 28 02:01	26°☾03'46	
minimum elong	2150 Dec 27 21:47	6°☾02'39	1°02'00	opposition	2159 Jul 17 08:26	24°☾40'32	0°35'17
max. Earth dist.	2150 Dec 27 15:28	6°☾02'04	31.22900 AU	min. Earth dist.	2159 Jul 17 05:40	24°☾40'43	29.15460 AU
retrograde	2151 Apr 10 08:09	8°☾31'31		direct	2159 Oct 05 09:13	23°☾17'07	
opposition	2151 Jun 29 01:04	7°☾08'50	1°04'34				
min. Earth dist.	2151 Jun 29 06:15	7°☾08'29	29.22500 AU	conjunction	2160 Jan 16 10:10	25°☾45'32	0°31'11
direct	2151 Sep 17 12:17	5°☾45'13		minimum elong	2160 Jan 16 10:10	25°☾45'32	0°31'11
				max. Earth dist.	2160 Jan 16 12:20	25°☾45'44	31.15134 AU
conjunction	2151 Dec 30 07:14	8°☾14'05	0°58'52	retrograde	2160 Apr 29 15:50	28°☾15'43	
minimum elong	2151 Dec 30 07:14	8°☾14'05	0°58'52	opposition	2160 Jul 18 21:36	26°☾52'26	0°31'19
max. Earth dist.	2151 Dec 30 02:39	8°☾13'39	31.21994 AU	min. Earth dist.	2160 Jul 18 18:17	26°☾52'40	29.14817 AU
retrograde	2152 Apr 11 19:35	10°☾43'04		direct	2160 Oct 06 19:28	25°☾29'05	
opposition	2152 Jun 30 14:04	9°☾20'18	1°01'11				
min. Earth dist.	2152 Jun 30 18:45	9°☾19'59	29.21528 AU	conjunction	2161 Jan 17 19:55	27°☾57'29	0°27'27
direct	2152 Sep 19 01:58	7°☾56'42		minimum elong	2161 Jan 17 19:56	27°☾57'29	0°27'28
				max. Earth dist.	2161 Jan 17 23:56	27°☾57'52	31.14467 AU
conjunction	2152 Dec 31 16:35	10°☾25'29	0°55'39		2161 Mar 21 19:02	0°☾	
minimum elong	2152 Dec 31 16:36	10°☾25'29	0°55'40	retrograde	2161 May 02 04:00	0°☾27'50	
max. Earth dist.	2152 Dec 31 11:43	10°☾25'02	31.20992 AU		2161 Jun 14 01:19	30°☾	
retrograde	2153 Apr 14 08:09	12°☾54'36		opposition	2161 Jul 21 10:37	29°☾04'31	0°27'18
opposition	2153 Jul 03 02:49	11°☾31'44	0°57'43	min. Earth dist.	2161 Jul 21 06:49	29°☾04'46	29.14115 AU
min. Earth dist.	2153 Jul 03 06:14	11°☾31'30	29.20497 AU	direct	2161 Oct 09 07:41	27°☾41'12	
direct	2153 Sep 21 12:58	10°☾08'07			2162 Jan 16 00:30	0°☾	
conjunction	2154 Jan 03 02:00	12°☾36'50	0°52'22	conjunction	2162 Jan 20 05:39	0°☾09'36	0°23'40
minimum elong	2154 Jan 03 02:01	12°☾36'50	0°52'22	minimum elong	2162 Jan 20 05:39	0°☾09'36	0°23'40
max. Earth dist.	2154 Jan 02 22:47	12°☾36'32	31.19943 AU	max. Earth dist.	2162 Jan 20 09:17	0°☾09'56	31.13731 AU
retrograde	2154 Apr 16 17:31	15°☾06'04		retrograde	2162 May 04 17:35	2°☾40'06	
opposition	2154 Jul 05 15:46	13°☾43'07	0°54'10	opposition	2162 Jul 23 23:47	1°☾16'45	0°23'14
min. Earth dist.	2154 Jul 05 19:01	13°☾42'53	29.19449 AU	min. Earth dist.	2162 Jul 23 18:53	1°☾17'04	29.13327 AU
direct	2154 Sep 24 01:59	12°☾19'30			2162 Sep 21 18:43	30°☾	
				direct	2162 Oct 11 18:14	29°☾53'28	
conjunction	2155 Jan 05 11:13	14°☾48'08	0°49'00		2162 Oct 31 12:46	0°☾	
minimum elong	2155 Jan 05 11:13	14°☾48'08	0°49'00				
max. Earth dist.	2155 Jan 05 08:30	14°☾47'53	31.18927 AU	conjunction	2163 Jan 22 15:29	2°☾21'50	0°19'52
retrograde	2155 Apr 19 05:21	17°☾17'29		minimum elong	2163 Jan 22 15:29	2°☾21'50	0°19'52
opposition	2155 Jul 08 04:36	15°☾54'27	0°50'32	max. Earth dist.	2163 Jan 22 20:24	2°☾22'17	31.12871 AU
min. Earth dist.	2155 Jul 08 05:47	15°☾54'22	29.18466 AU	retrograde	2163 May 07 05:02	4°☾52'30	
direct	2155 Sep 26 14:09	14°☾30'51		opposition	2163 Jul 26 13:09	3°☾29'05	0°19'08
				min. Earth dist.	2163 Jul 26 08:24	3°☾29'24	29.12402 AU
conjunction	2156 Jan 07 20:34	16°☾59'25	0°45'34	direct	2163 Oct 14 07:20	2°☾05'50	
minimum elong	2156 Jan 07 20:34	16°☾59'25	0°45'34				
max. Earth dist.	2156 Jan 07 19:11	16°☾59'17	31.17988 AU	conjunction	2164 Jan 25 01:24	4°☾34'09	0°16'01
retrograde	2156 Apr 20 15:52	19°☾28'55		minimum elong	2164 Jan 25 01:24	4°☾34'09	0°16'01
opposition	2156 Jul 09 17:38	18°☾05'48	0°46'49	behind sun begin	2164 Jan 25 00:17	4°☾34'03	

behind sun end	2164 Jan 25 02:32	4°34'15		opposition	2170 Aug 11 09:20	18°55'44	0°-9'-59
max. Earth dist.	2164 Jan 25 06:25	4°34'37	31.11892 AU	min. Earth dist.	2170 Aug 10 22:28	18°56'28	29.04768 AU
retrograde	2164 May 08 18:34	7°04'58		direct	2170 Oct 29 14:46	17°32'31	
opposition	2164 Jul 28 02:21	5°41'27	0°15'01				
min. Earth dist.	2164 Jul 27 20:04	5°41'53	29.11353 AU	conjunction	2171 Feb 08 23:05	20°00'37	0°-11'-18
direct	2164 Oct 15 19:51	4°18'13		minimum elong	2171 Feb 08 23:05	20°00'37	0°11'18
				behind sun begin	2171 Feb 08 18:20	20°00'11	
conjunction	2165 Jan 26 11:20	6°46'29	0°12'10	behind sun end	2171 Feb 09 03:50	20°01'03	
minimum elong	2165 Jan 26 11:20	6°46'29	0°12'10	max. Earth dist.	2171 Feb 09 10:02	20°01'38	31.04344 AU
behind sun begin	2165 Jan 26 06:57	6°46'05		retrograde	2171 May 25 08:03	22°32'31	
behind sun end	2165 Jan 26 15:43	6°46'53		opposition	2171 Aug 13 22:32	21°08'28	0°-14'-8
max. Earth dist.	2165 Jan 26 17:01	6°47'01	31.10777 AU	min. Earth dist.	2171 Aug 13 10:17	21°09'18	29.03948 AU
retrograde	2165 May 11 05:37	9°17'26		direct	2171 Nov 01 00:40	19°45'18	
opposition	2165 Jul 30 15:41	7°53'50	0°10'52				
min. Earth dist.	2165 Jul 30 09:53	7°54'14	29.10190 AU	conjunction	2172 Feb 11 09:22	22°13'25	0°-15'-10
direct	2165 Oct 18 07:21	6°30'35		minimum elong	2172 Feb 11 09:22	22°13'25	0°15'12
				behind sun begin	2172 Feb 11 07:03	22°13'13	
conjunction	2166 Jan 28 21:16	8°58'47	0°08'17	behind sun end	2172 Feb 11 11:41	22°13'38	
minimum elong	2166 Jan 28 21:17	8°58'47	0°08'17	max. Earth dist.	2172 Feb 11 21:50	22°14'36	31.03542 AU
behind sun begin	2166 Jan 28 15:36	8°58'16		retrograde	2172 May 26 20:50	24°45'31	
behind sun end	2166 Jan 29 02:57	8°59'18		opposition	2172 Aug 15 11:44	23°21'26	0°-18'-17
max. Earth dist.	2166 Jan 29 04:00	8°59'24	31.09586 AU	min. Earth dist.	2172 Aug 14 23:27	23°22'16	29.03167 AU
retrograde	2166 May 13 16:38	11°29'52		direct	2172 Nov 02 13:24	21°58'19	
opposition	2166 Aug 02 04:43	10°06'10	0°06'42				
min. Earth dist.	2166 Aug 01 21:10	10°06'40	29.08975 AU	conjunction	2173 Feb 12 19:42	24°26'27	0°-19'-2
direct	2166 Oct 20 19:46	8°42'53		minimum elong	2173 Feb 12 19:42	24°26'27	0°19'03
				max. Earth dist.	2173 Feb 13 08:31	24°27'40	31.02776 AU
conjunction	2167 Jan 31 07:09	11°11'03	0°04'25	retrograde	2173 May 29 11:55	26°58'44	
minimum elong	2167 Jan 31 07:08	11°11'03	0°04'25	min. Earth dist.	2173 Aug 17 11:02	25°35'33	29.02391 AU
behind sun begin	2167 Jan 31 00:51	11°10'29		opposition	2173 Aug 18 00:52	25°34'37	0°-22'-25
behind sun end	2167 Jan 31 13:26	11°11'37		direct	2173 Nov 05 01:41	24°11'33	
max. Earth dist.	2167 Jan 31 14:05	11°11'41	31.08373 AU				
retrograde	2167 May 16 04:37	13°42'16		conjunction	2174 Feb 15 06:09	26°39'43	0°-22'-53
opposition	2167 Aug 04 18:02	12°18'28	0°02'32	minimum elong	2174 Feb 15 06:09	26°39'43	0°22'54
min. Earth dist.	2167 Aug 04 10:21	12°18'59	29.07793 AU	max. Earth dist.	2174 Feb 15 19:34	26°40'59	31.01967 AU
direct	2167 Oct 23 05:26	10°55'11		retrograde	2174 May 31 23:44	29°12'10	
				opposition	2174 Aug 20 14:10	27°48'01	0°-26'-30
conjunction	2168 Feb 02 17:04	13°23'18	0°00'27	min. Earth dist.	2174 Aug 20 00:56	27°48'55	29.01562 AU
minimum elong	2168 Feb 02 17:04	13°23'18	0°00'27	direct	2174 Nov 07 12:55	26°24'59	
behind sun begin	2168 Feb 02 10:42	13°22'43					
behind sun end	2168 Feb 02 23:26	13°23'52		conjunction	2175 Feb 17 16:51	28°53'09	0°-26'-41
max. Earth dist.	2168 Feb 03 01:56	13°24'07	31.07223 AU	minimum elong	2175 Feb 17 16:51	28°53'09	0°26'42
desc. node	2168 Mar 14 16:59	14°50'53		max. Earth dist.	2175 Feb 18 07:09	28°54'30	31.01102 AU
	2168 Mar 19 18:20	15°			2175 Mar 20 00:52	0°	
retrograde	2168 May 17 16:05	15°54'40		retrograde	2175 Jun 03 12:09	1°25'46	
	2168 Jul 19 00:10	15°		opposition	2175 Aug 23 03:24	0°01'34	0°-30'-33
opposition	2168 Aug 06 07:10	14°30'47	0°-1'-38	min. Earth dist.	2175 Aug 22 12:43	0°02'34	29.00645 AU
min. Earth dist.	2168 Aug 05 21:49	14°31'25	29.06680 AU		2175 Aug 24 02:23	30°	
direct	2168 Oct 24 17:28	13°07'30		direct	2175 Nov 10 01:39	28°38'33	
	2169 Jan 19 08:41	15°			2176 Jan 20 19:53	0°	
conjunction	2169 Feb 04 03:02	15°35'36	0°-3'-32	conjunction	2176 Feb 20 03:30	1°06'43	0°-30'-27
minimum elong	2169 Feb 04 03:01	15°35'36	0°03'32	minimum elong	2176 Feb 20 03:29	1°06'43	0°30'28
behind sun begin	2169 Feb 03 20:40	15°35'01		max. Earth dist.	2176 Feb 20 17:26	1°08'03	31.00122 AU
behind sun end	2169 Feb 04 09:22	15°36'10		retrograde	2176 Jun 05 01:09	3°39'29	
max. Earth dist.	2169 Feb 04 11:51	15°36'25	31.06161 AU	opposition	2176 Aug 24 16:48	2°15'13	0°-34'-34
retrograde	2169 May 20 05:41	18°07'08		min. Earth dist.	2176 Aug 24 02:37	2°16'11	28.99614 AU
opposition	2169 Aug 08 20:11	16°43'11	0°-5'-48	direct	2176 Nov 11 12:13	0°52'12	
min. Earth dist.	2169 Aug 08 10:11	16°43'52	29.05680 AU				
direct	2169 Oct 27 03:15	15°19'56		conjunction	2177 Feb 21 14:29	3°20'20	0°-34'-11
				minimum elong	2177 Feb 21 14:29	3°20'20	0°34'11
conjunction	2170 Feb 06 13:10	17°48'01	0°-7'-25	max. Earth dist.	2177 Feb 22 05:39	3°21'46	30.99029 AU
minimum elong	2170 Feb 06 13:10	17°48'01	0°07'26	retrograde	2177 Jun 07 12:33	5°53'13	
behind sun begin	2170 Feb 06 07:18	17°47'29		opposition	2177 Aug 27 05:48	4°28'51	0°-38'-32
behind sun end	2170 Feb 06 19:02	17°48'33		min. Earth dist.	2177 Aug 26 14:37	4°29'54	28.98461 AU
max. Earth dist.	2170 Feb 07 00:02	17°49'02	31.05205 AU	direct	2177 Nov 14 00:55	3°05'48	
retrograde	2170 May 22 17:58	20°19'44					

conjunction	2178 Feb 24 01:14	5° ✕ 33'54	0°-37'-51	retrograde	2186 Jun 28 10:15	25° ✕ 56'05	
minimum elong	2178 Feb 24 01:14	5° ✕ 33'54	0°37'52	min. Earth dist.	2186 Sep 16 06:02	24° ✕ 32'35	28.90530 AU
max. Earth dist.	2178 Feb 24 15:50	5° ✕ 35'17	30.97840 AU	opposition	2186 Sep 17 02:39	24° ✕ 31'09	-1°-10'-56
retrograde	2178 Jun 10 01:15	8° ✕ 06'54		direct	2186 Dec 04 07:44	23° ✕ 08'05	
opposition	2178 Aug 29 19:01	6° ✕ 42'25	0°-42'-26				
min. Earth dist.	2178 Aug 29 03:43	6° ✕ 43'28	28.97256 AU	conjunction	2187 Mar 16 05:16	25° ✕ 36'18	-1°-7'-48
direct	2178 Nov 16 11:01	5° ✕ 19'19		minimum elong	2187 Mar 16 05:16	25° ✕ 36'18	1°07'48
				max. Earth dist.	2187 Mar 17 01:48	25° ✕ 38'15	30.90192 AU
conjunction	2179 Feb 26 12:02	7° ✕ 47'23	0°-41'-28	retrograde	2187 Jun 30 23:38	28° ✕ 10'27	
minimum elong	2179 Feb 26 12:02	7° ✕ 47'23	0°41'29	opposition	2187 Sep 19 15:42	26° ✕ 45'30	-1°-14'-4
max. Earth dist.	2179 Feb 27 04:24	7° ✕ 48'56	30.96621 AU	min. Earth dist.	2187 Sep 18 19:19	26° ✕ 46'54	28.89964 AU
retrograde	2179 Jun 12 12:41	10° ✕ 20'29		direct	2187 Dec 06 17:32	25° ✕ 22'27	
opposition	2179 Sep 01 08:10	8° ✕ 55'53	0°-46'-16				
min. Earth dist.	2179 Aug 31 16:15	8° ✕ 56'59	28.96049 AU	conjunction	2188 Mar 17 17:12	27° ✕ 50'43	-1°-10'-41
direct	2179 Nov 18 22:37	7° ✕ 32'44		minimum elong	2188 Mar 17 17:12	27° ✕ 50'43	1°10'42
				max. Earth dist.	2188 Mar 18 14:56	27° ✕ 52'47	30.89578 AU
conjunction	2180 Feb 28 22:52	10° ✕ 00'46	0°-45'-1		2188 May 24 02:45	0° Υ	
minimum elong	2180 Feb 28 22:51	10° ✕ 00'46	0°45'03	retrograde	2188 Jul 02 11:45	0° Υ 25'00	
max. Earth dist.	2180 Feb 29 15:05	10° ✕ 02'18	30.95447 AU		2188 Aug 11 23:32	30° ℞ ✕	
retrograde	2180 Jun 14 02:45	12° ✕ 33'58		min. Earth dist.	2188 Sep 20 08:08	29° ✕ 01'26	28.89308 AU
opposition	2180 Sep 02 21:05	11° ✕ 09'16	0°-50'-2	opposition	2188 Sep 21 04:32	29° ✕ 00'01	-1°-17'-7
min. Earth dist.	2180 Sep 02 04:07	11° ✕ 10'26	28.94928 AU	direct	2188 Dec 08 04:41	27° ✕ 36'58	
direct	2180 Nov 20 08:57	9° ✕ 46'05			2189 Mar 17 21:22	0° Υ	
conjunction	2181 Mar 02 09:51	12° ✕ 14'06	0°-48'-31	conjunction	2189 Mar 20 05:07	0° Υ 05'17	-1°-13'-29
minimum elong	2181 Mar 02 09:50	12° ✕ 14'06	0°48'32	minimum elong	2189 Mar 20 05:06	0° Υ 05'17	1°13'29
max. Earth dist.	2181 Mar 03 03:26	12° ✕ 15'46	30.94362 AU	max. Earth dist.	2189 Mar 21 01:55	0° Υ 07'15	30.88877 AU
retrograde	2181 Jun 16 15:19	14° ✕ 47'25		retrograde	2189 Jul 05 02:11	2° Υ 39'40	
opposition	2181 Sep 05 10:06	13° ✕ 22'37	0°-53'-44	opposition	2189 Sep 23 17:28	1° Υ 14'38	-1°-20'-2
min. Earth dist.	2181 Sep 04 17:01	13° ✕ 23'48	28.93909 AU	min. Earth dist.	2189 Sep 22 20:43	1° Υ 16'04	28.88563 AU
direct	2181 Nov 22 21:18	11° ✕ 59'25			2189 Nov 18 07:44	30° ℞ ✕	
				direct	2189 Dec 10 15:08	29° ✕ 51'34	
conjunction	2182 Mar 04 20:45	14° ✕ 27'26	0°-51'-56		2190 Jan 01 17:46	0° Υ	
minimum elong	2182 Mar 04 20:45	14° ✕ 27'26	0°51'57				
max. Earth dist.	2182 Mar 05 14:50	14° ✕ 29'09	30.93412 AU	conjunction	2190 Mar 22 17:01	2° Υ 19'54	-1°-16'-9
retrograde	2182 Jun 19 05:57	17° ✕ 00'52		minimum elong	2190 Mar 22 17:00	2° Υ 19'54	1°16'11
opposition	2182 Sep 07 22:59	15° ✕ 36'00	0°-57'-21	max. Earth dist.	2190 Mar 23 14:34	2° Υ 21'57	30.88076 AU
min. Earth dist.	2182 Sep 07 04:10	15° ✕ 37'18	28.93029 AU	retrograde	2190 Jul 07 14:34	4° Υ 54'22	
direct	2182 Nov 25 09:07	14° ✕ 12'48		min. Earth dist.	2190 Sep 25 10:06	3° Υ 30'41	28.87733 AU
				opposition	2190 Sep 26 06:22	3° Υ 29'16	-1°-22'-50
conjunction	2183 Mar 07 07:49	16° ✕ 40'51	0°-55'-17	direct	2190 Dec 13 03:28	2° Υ 06'10	
minimum elong	2183 Mar 07 07:49	16° ✕ 40'51	0°55'17				
max. Earth dist.	2183 Mar 08 02:40	16° ✕ 42'38	30.92589 AU	conjunction	2191 Mar 25 05:00	4° Υ 34'31	-1°-18'-43
retrograde	2183 Jun 21 18:31	19° ✕ 14'25		minimum elong	2191 Mar 25 05:00	4° Υ 34'31	1°18'44
opposition	2183 Sep 10 12:01	17° ✕ 49'30	-1°00'-53	max. Earth dist.	2191 Mar 26 02:26	4° Υ 36'33	30.87242 AU
min. Earth dist.	2183 Sep 09 17:33	17° ✕ 50'47	28.92281 AU	retrograde	2191 Jul 10 05:05	7° Υ 09'01	
direct	2183 Nov 27 20:08	16° ✕ 26'19		opposition	2191 Sep 28 19:03	5° Υ 43'52	-1°-25'-31
				min. Earth dist.	2191 Sep 27 21:44	5° Υ 45'20	28.86902 AU
conjunction	2184 Mar 08 19:01	18° ✕ 54'23	0°-58'-32	direct	2191 Dec 15 15:07	4° Υ 20'42	
minimum elong	2184 Mar 08 19:01	18° ✕ 54'23	0°58'34				
max. Earth dist.	2184 Mar 09 15:02	18° ✕ 56'17	30.91904 AU	conjunction	2192 Mar 26 17:00	6° Υ 49'04	-1°-21'-9
retrograde	2184 Jun 23 08:18	21° ✕ 28'05		minimum elong	2192 Mar 26 17:00	6° Υ 49'04	1°21'11
min. Earth dist.	2184 Sep 11 04:50	20° ✕ 04'33	28.91642 AU	max. Earth dist.	2192 Mar 27 14:45	6° Υ 51'07	30.86412 AU
opposition	2184 Sep 12 00:53	20° ✕ 03'10	-1°-4'-19	retrograde	2192 Jul 11 17:54	9° Υ 23'38	
direct	2184 Nov 29 08:55	18° ✕ 40'01		min. Earth dist.	2192 Sep 29 11:13	7° Υ 59'49	28.86111 AU
				opposition	2192 Sep 30 07:46	7° Υ 58'24	-1°-28'-3
conjunction	2185 Mar 11 06:18	21° ✕ 08'08	-1°-1'-43	direct	2192 Dec 17 02:27	6° Υ 35'12	
minimum elong	2185 Mar 11 06:17	21° ✕ 08'08	1°01'44				
max. Earth dist.	2185 Mar 12 02:07	21° ✕ 10'00	30.91297 AU	conjunction	2193 Mar 29 05:09	9° Υ 03'34	-1°-23'-29
retrograde	2185 Jun 25 22:08	23° ✕ 41'59		minimum elong	2193 Mar 29 05:08	9° Υ 03'34	1°23'29
opposition	2185 Sep 14 13:45	22° ✕ 17'02	-1°-7'-41	max. Earth dist.	2193 Mar 30 03:41	9° Υ 05'42	30.85664 AU
min. Earth dist.	2185 Sep 13 18:12	22° ✕ 18'23	28.91077 AU	retrograde	2193 Jul 14 08:28	11° Υ 38'10	
direct	2185 Dec 01 19:21	20° ✕ 53'56		opposition	2193 Oct 02 20:07	10° Υ 12'53	-1°-30'-28
				min. Earth dist.	2193 Oct 01 22:17	10° Υ 14'24	28.85416 AU
conjunction	2186 Mar 13 17:50	23° ✕ 22'06	-1°-4'-48	direct	2193 Dec 19 16:06	8° Υ 49'39	
minimum elong	2186 Mar 13 17:50	23° ✕ 22'06	1°04'50				
max. Earth dist.	2186 Mar 14 15:04	23° ✕ 24'07	30.90748 AU	conjunction	2194 Mar 31 17:13	11° Υ 18'03	-1°-25'-40

minimum elong	2194 Mar 31 17:13	11° Υ 18'03	1°25'41	retrograde	2202 Aug 05 08:36	1° \mathcal{B} 52'03	
max. Earth dist.	2194 Apr 01 15:26	11° Υ 20'09	30.85024 AU	opposition	2202 Oct 24 11:52	0° \mathcal{B} 26'42	-1°-45'-39
retrograde	2194 Jul 16 22:30	13° Υ 52'42		min. Earth dist.	2202 Oct 23 14:12	0° \mathcal{B} 28'13	28.82995 AU
min. Earth dist.	2194 Oct 04 11:25	12° Υ 28'51	28.84857 AU		2202 Nov 09 16:00	30° $\mathcal{R}\Upsilon$	
opposition	2194 Oct 05 08:44	12° Υ 27'22	-1°-32'-45	direct	2203 Jan 09 23:50	29° Υ 03'23	
direct	2194 Dec 22 03:28	11° Υ 04'06			2203 Mar 09 16:35	0° \mathcal{B}	
conjunction	2195 Apr 03 05:25	13° Υ 32'32	-1°-27'-44	conjunction	2203 Apr 22 11:38	1° \mathcal{B} 32'15	-1°-39'-14
minimum elong	2195 Apr 03 05:25	13° Υ 32'32	1°27'45	minimum elong	2203 Apr 22 11:38	1° \mathcal{B} 32'15	1°39'15
max. Earth dist.	2195 Apr 04 05:00	13° Υ 34'46	30.84533 AU	max. Earth dist.	2203 Apr 23 09:46	1° \mathcal{B} 34'20	30.82683 AU
retrograde	2195 Jul 19 10:37	16° Υ 07'15		retrograde	2203 Aug 07 22:15	4° \mathcal{B} 07'16	
opposition	2195 Oct 07 21:10	14° Υ 41'53	-1°-34'-53	min. Earth dist.	2203 Oct 26 03:49	2° \mathcal{B} 43'17	28.82592 AU
min. Earth dist.	2195 Oct 06 22:45	14° Υ 43'26	28.84434 AU	opposition	2203 Oct 27 00:11	2° \mathcal{B} 41'52	-1°-46'-34
direct	2195 Dec 24 16:08	13° Υ 18'37		direct	2204 Jan 12 11:32	1° \mathcal{B} 18'30	
conjunction	2196 Apr 04 17:42	15° Υ 47'05	-1°-29'-40	conjunction	2204 Apr 24 00:57	3° \mathcal{B} 47'23	-1°-40'-1
minimum elong	2196 Apr 04 17:42	15° Υ 47'05	1°29'41	minimum elong	2204 Apr 24 00:57	3° \mathcal{B} 47'23	1°40'02
max. Earth dist.	2196 Apr 05 16:34	15° Υ 49'14	30.84179 AU	max. Earth dist.	2204 Apr 24 23:42	3° \mathcal{B} 49'32	30.82273 AU
retrograde	2196 Jul 21 00:24	18° Υ 21'51		retrograde	2204 Aug 09 11:16	6° \mathcal{B} 22'21	
min. Earth dist.	2196 Oct 08 11:20	16° Υ 58'01	28.84155 AU	opposition	2204 Oct 28 12:05	4° \mathcal{B} 56'56	-1°-47'-19
opposition	2196 Oct 09 09:34	16° Υ 56'28	-1°-36'-53	min. Earth dist.	2204 Oct 27 15:13	4° \mathcal{B} 58'24	28.82182 AU
direct	2196 Dec 26 02:33	15° Υ 33'13		direct	2205 Jan 14 00:44	3° \mathcal{B} 33'30	
conjunction	2197 Apr 07 06:15	18° Υ 01'44	-1°-31'-28	conjunction	2205 Apr 26 14:04	6° \mathcal{B} 02'26	-1°-40'-38
minimum elong	2197 Apr 07 06:15	18° Υ 01'44	1°31'29	minimum elong	2205 Apr 26 14:04	6° \mathcal{B} 02'26	1°40'39
max. Earth dist.	2197 Apr 08 06:29	18° Υ 04'01	30.83949 AU	max. Earth dist.	2205 Apr 27 11:36	6° \mathcal{B} 04'28	30.81885 AU
retrograde	2197 Jul 23 12:44	20° Υ 36'33		retrograde	2205 Aug 12 01:35	8° \mathcal{B} 37'23	
opposition	2197 Oct 11 21:59	19° Υ 11'11	-1°-38'-44	min. Earth dist.	2205 Oct 30 03:53	7° \mathcal{B} 13'21	28.81836 AU
min. Earth dist.	2197 Oct 10 23:34	19° Υ 12'45	28.83970 AU	opposition	2205 Oct 31 00:09	7° \mathcal{B} 11'56	-1°-47'-54
direct	2197 Dec 28 14:09	17° Υ 47'57		direct	2206 Jan 16 12:03	5° \mathcal{B} 48'27	
conjunction	2198 Apr 09 18:38	20° Υ 16'31	-1°-33'-8	conjunction	2206 Apr 29 03:13	8° \mathcal{B} 17'25	-1°-41'-7
minimum elong	2198 Apr 09 18:37	20° Υ 16'31	1°33'09	minimum elong	2206 Apr 29 03:14	8° \mathcal{B} 17'25	1°41'07
max. Earth dist.	2198 Apr 10 18:08	20° Υ 18'44	30.83810 AU	max. Earth dist.	2206 Apr 30 01:53	8° \mathcal{B} 19'34	30.81575 AU
retrograde	2198 Jul 26 02:28	22° Υ 51'25		retrograde	2206 Aug 14 13:46	10° \mathcal{B} 52'20	
min. Earth dist.	2198 Oct 13 11:45	21° Υ 27'39	28.83863 AU	opposition	2206 Nov 02 12:06	9° \mathcal{B} 26'53	-1°-48'-19
opposition	2198 Oct 14 10:27	21° Υ 26'04	-1°-40'-25	min. Earth dist.	2206 Nov 01 15:46	9° \mathcal{B} 28'18	28.81577 AU
direct	2198 Dec 31 00:39	20° Υ 02'50		direct	2207 Jan 19 00:28	8° \mathcal{B} 03'21	
conjunction	2199 Apr 12 07:26	22° Υ 31'28	-1°-34'-38	conjunction	2207 May 01 16:26	10° \mathcal{B} 32'22	-1°-41'-26
minimum elong	2199 Apr 12 07:26	22° Υ 31'28	1°34'40	minimum elong	2207 May 01 16:26	10° \mathcal{B} 32'22	1°41'27
max. Earth dist.	2199 Apr 13 07:37	22° Υ 33'45	30.83703 AU	max. Earth dist.	2207 May 02 14:04	10° \mathcal{B} 34'25	30.81386 AU
retrograde	2199 Jul 28 14:17	25° Υ 06'25		retrograde	2207 Aug 17 02:55	13° \mathcal{B} 07'16	
opposition	2199 Oct 16 22:51	23° Υ 41'05	-1°-41'-58	opposition	2207 Nov 04 23:53	11° \mathcal{B} 41'49	-1°-48'-34
min. Earth dist.	2199 Oct 16 00:56	23° Υ 42'37	28.83757 AU	min. Earth dist.	2207 Nov 04 03:27	11° \mathcal{B} 43'15	28.81459 AU
direct	2200 Jan 02 11:49	22° Υ 17'52		direct	2208 Jan 21 11:16	10° \mathcal{B} 18'15	
conjunction	2200 Apr 14 20:23	24° Υ 46'35	-1°-36'-1	conjunction	2208 May 03 05:50	12° \mathcal{B} 47'20	-1°-41'-35
minimum elong	2200 Apr 14 20:23	24° Υ 46'35	1°36'02	minimum elong	2208 May 03 05:51	12° \mathcal{B} 47'20	1°41'36
max. Earth dist.	2200 Apr 15 19:53	24° Υ 48'48	30.83582 AU	max. Earth dist.	2208 May 04 04:10	12° \mathcal{B} 49'27	30.81325 AU
retrograde	2200 Jul 31 05:05	27° Υ 21'34			2208 Jul 12 14:18	15° \mathcal{B}	
opposition	2200 Oct 19 11:13	25° Υ 56'15	-1°-43'-21	retrograde	2208 Aug 18 14:03	15° \mathcal{B} 22'13	
min. Earth dist.	2200 Oct 18 12:47	25° Υ 57'49	28.83602 AU		2208 Sep 25 05:48	15° $\mathcal{R}\mathcal{B}$	
direct	2201 Jan 04 22:53	24° Υ 33'00		opposition	2208 Nov 06 11:43	13° \mathcal{B} 56'47	-1°-48'-39
conjunction	2201 Apr 17 09:26	27° Υ 01'47	-1°-37'-14	min. Earth dist.	2208 Nov 05 15:54	13° \mathcal{B} 58'10	28.81465 AU
minimum elong	2201 Apr 17 09:26	27° Υ 01'47	1°37'15	direct	2209 Jan 22 22:17	12° \mathcal{B} 33'12	
max. Earth dist.	2201 Apr 18 08:35	27° Υ 03'58	30.83367 AU		2209 May 04 18:04	15° \mathcal{B}	
retrograde	2201 Aug 02 17:50	29° Υ 36'49		conjunction	2209 May 05 19:10	15° \mathcal{B} 02'22	-1°-41'-36
opposition	2201 Oct 21 23:36	28° Υ 11'29	-1°-44'-35	minimum elong	2209 May 05 19:10	15° \mathcal{B} 02'22	1°41'37
min. Earth dist.	2201 Oct 21 02:34	28° Υ 12'57	28.83342 AU	max. Earth dist.	2209 May 06 16:50	15° \mathcal{B} 04'24	30.81407 AU
direct	2202 Jan 07 10:12	26° Υ 48'13		retrograde	2209 Aug 21 04:24	17° \mathcal{B} 37'13	
conjunction	2202 Apr 19 22:37	29° Υ 17'02	-1°-38'-19	opposition	2209 Nov 08 23:21	16° \mathcal{B} 11'49	-1°-48'-35
minimum elong	2202 Apr 19 22:37	29° Υ 17'02	1°38'20	min. Earth dist.	2209 Nov 08 02:51	16° \mathcal{B} 13'16	28.81608 AU
max. Earth dist.	2202 Apr 20 21:44	29° Υ 19'13	30.83068 AU	direct	2209 Dec 30 00:31	15° $\mathcal{R}\mathcal{B}$	
	2202 May 09 03:18	0° \mathcal{B}			2210 Jan 25 08:33	14° \mathcal{B} 48'14	
					2210 Feb 20 11:22	15° \mathcal{B}	

conjunction	2210 May 08 08:37	17° ♄ 17'29	-1°-41'-26	conjunction	2218 May 26 23:27	5° ♄ 19'38	-1°-34'-42
minimum elong	2210 May 08 08:37	17° ♄ 17'29	1°41'28	minimum elong	2218 May 26 23:28	5° ♄ 19'38	1°34'43
max. Earth dist.	2210 May 09 06:16	17° ♄ 19'31	30.81602 AU	max. Earth dist.	2218 May 27 15:53	5° ♄ 21'10	30.82881 AU
retrograde	2210 Aug 23 16:02	19° ♄ 52'20		retrograde	2218 Sep 11 02:37	7° ♄ 53'47	
opposition	2210 Nov 11 11:07	18° ♄ 26'59	-1°-48'-20	opposition	2218 Nov 29 06:51	6° ♄ 28'35	-1°-40'-29
min. Earth dist.	2210 Nov 10 15:52	18° ♄ 28'21	28.81853 AU	min. Earth dist.	2218 Nov 28 15:33	6° ♄ 29'40	28.83055 AU
direct	2211 Jan 27 19:22	17° ♄ 03'24		direct	2219 Feb 14 20:55	5° ♄ 04'34	
conjunction	2211 May 10 22:14	19° ♄ 32'44	-1°-41'-8	conjunction	2219 May 29 13:20	7° ♄ 34'19	-1°-33'-12
minimum elong	2211 May 10 22:14	19° ♄ 32'44	1°41'09	minimum elong	2219 May 29 13:20	7° ♄ 34'19	1°33'14
max. Earth dist.	2211 May 11 19:49	19° ♄ 34'46	30.81892 AU	max. Earth dist.	2219 May 30 05:35	7° ♄ 35'51	30.83069 AU
retrograde	2211 Aug 26 06:13	22° ♄ 07'34		retrograde	2219 Sep 13 12:52	10° ♄ 08'22	
opposition	2211 Nov 13 22:43	20° ♄ 42'16	-1°-47'-55	opposition	2219 Dec 01 18:02	8° ♄ 43'10	-1°-38'-48
min. Earth dist.	2211 Nov 13 03:00	20° ♄ 43'40	28.82150 AU	min. Earth dist.	2219 Dec 01 04:04	8° ♄ 44'09	28.83306 AU
direct	2212 Jan 30 08:21	19° ♄ 18'41		direct	2220 Feb 17 07:58	7° ♄ 19'06	
conjunction	2212 May 12 11:59	21° ♄ 48'07	-1°-40'-40	conjunction	2220 May 31 03:17	9° ♄ 48'54	-1°-31'-34
minimum elong	2212 May 12 11:59	21° ♄ 48'07	1°40'40	minimum elong	2220 May 31 03:18	9° ♄ 48'54	1°31'34
max. Earth dist.	2212 May 13 08:25	21° ♄ 50'03	30.82184 AU	max. Earth dist.	2220 May 31 19:13	9° ♄ 50'23	30.83398 AU
retrograde	2212 Aug 27 19:26	24° ♄ 22'55		retrograde	2220 Sep 15 01:38	12° ♄ 22'48	
opposition	2212 Nov 15 10:21	22° ♄ 57'41	-1°-47'-20	opposition	2220 Dec 03 04:54	10° ♄ 57'39	-1°-36'-58
min. Earth dist.	2212 Nov 14 16:15	22° ♄ 58'57	28.82435 AU	min. Earth dist.	2220 Dec 02 14:22	10° ♄ 58'41	28.83699 AU
direct	2213 Jan 31 19:13	21° ♄ 34'04		direct	2221 Feb 18 20:12	9° ♄ 33'32	
conjunction	2213 May 15 01:58	24° ♄ 03'36	-1°-40'-3	conjunction	2221 Jun 02 17:08	12° ♄ 03'24	-1°-29'-47
minimum elong	2213 May 15 01:58	24° ♄ 03'36	1°40'03	minimum elong	2221 Jun 02 17:09	12° ♄ 03'24	1°29'49
max. Earth dist.	2213 May 15 22:29	24° ♄ 05'31	30.82443 AU	max. Earth dist.	2221 Jun 03 08:14	12° ♄ 04'49	30.83868 AU
retrograde	2213 Aug 30 09:22	26° ♄ 38'20		retrograde	2221 Sep 17 13:42	14° ♄ 37'13	
opposition	2213 Nov 17 21:58	25° ♄ 13'08	-1°-46'-35	opposition	2221 Dec 05 16:01	13° ♄ 12'07	-1°-34'-59
min. Earth dist.	2213 Nov 17 03:46	25° ♄ 14'25	28.82647 AU	min. Earth dist.	2221 Dec 05 02:44	13° ♄ 13'04	28.84252 AU
direct	2214 Feb 03 08:28	23° ♄ 49'29		direct	2222 Feb 21 06:21	11° ♄ 47'59	
conjunction	2214 May 17 15:41	26° ♄ 19'05	-1°-39'-16	conjunction	2222 Jun 05 07:00	14° ♄ 17'56	-1°-27'-52
minimum elong	2214 May 17 15:42	26° ♄ 19'05	1°39'17	minimum elong	2222 Jun 05 07:00	14° ♄ 17'56	1°27'53
max. Earth dist.	2214 May 18 10:22	26° ♄ 20'50	30.82615 AU	max. Earth dist.	2222 Jun 05 22:27	14° ♄ 19'22	30.84502 AU
retrograde	2214 Sep 02 00:19	28° ♄ 53'44		retrograde	2222 Sep 20 02:48	16° ♄ 51'39	
opposition	2214 Nov 20 09:40	27° ♄ 28'32	-1°-45'-40	opposition	2222 Dec 08 02:57	15° ♄ 26'38	-1°-32'-52
min. Earth dist.	2214 Nov 19 16:39	27° ♄ 29'44	28.82779 AU	min. Earth dist.	2222 Dec 07 13:20	15° ♄ 27'36	28.84937 AU
direct	2215 Feb 05 20:47	26° ♄ 04'51		direct	2223 Feb 23 19:19	14° ♄ 02'29	
conjunction	2215 May 20 05:47	28° ♄ 34'29	-1°-38'-21	conjunction	2223 Jun 07 20:58	16° ♄ 32'32	-1°-25'-49
minimum elong	2215 May 20 05:47	28° ♄ 34'29	1°38'22	minimum elong	2223 Jun 07 20:59	16° ♄ 32'32	1°25'50
max. Earth dist.	2215 May 21 00:48	28° ♄ 36'16	30.82708 AU	max. Earth dist.	2223 Jun 08 10:48	16° ♄ 33'49	30.85250 AU
retrograde	2215 Jun 29 09:36	0° ♄		retrograde	2223 Sep 22 17:02	19° ♄ 06'10	
opposition	2215 Sep 04 12:17	1° ♄ 09'01		opposition	2223 Dec 10 13:50	17° ♄ 41'14	-1°-30'-35
min. Earth dist.	2215 Nov 13 06:39	30° ♄		min. Earth dist.	2223 Dec 10 01:20	17° ♄ 42'07	28.85729 AU
opposition	2215 Nov 22 21:04	29° ♄ 43'49	-1°-44'-36	direct	2224 Feb 26 06:52	16° ♄ 17'06	
min. Earth dist.	2215 Nov 22 04:39	29° ♄ 44'59	28.82830 AU				
direct	2216 Feb 08 10:09	28° ♄ 20'04		conjunction	2224 Jun 09 11:13	18° ♄ 47'16	-1°-23'-37
	2216 Apr 29 08:11	0° ♄		minimum elong	2224 Jun 09 11:13	18° ♄ 47'16	1°23'38
conjunction	2216 May 21 19:43	0° ♄ 49'43	-1°-37'-17	max. Earth dist.	2224 Jun 10 01:25	18° ♄ 48'35	30.86066 AU
minimum elong	2216 May 21 19:44	0° ♄ 49'43	1°37'18	retrograde	2224 Sep 24 05:15	21° ♄ 20'48	
max. Earth dist.	2216 May 22 12:58	0° ♄ 51'20	30.82750 AU	opposition	2224 Dec 12 00:44	19° ♄ 55'59	-1°-28'-11
retrograde	2216 Sep 06 01:51	3° ♄ 24'08		min. Earth dist.	2224 Dec 11 12:54	19° ♄ 56'49	28.86542 AU
opposition	2216 Nov 24 08:28	1° ♄ 58'56	-1°-43'-23	direct	2225 Feb 27 19:43	18° ♄ 31'51	
min. Earth dist.	2216 Nov 23 16:32	2° ♄ 00'04	28.82864 AU				
direct	2217 Feb 09 21:45	0° ♄ 35'05		conjunction	2225 Jun 12 01:12	21° ♄ 02'07	-1°-21'-18
conjunction	2217 May 24 09:37	3° ♄ 04'46	-1°-36'-4	minimum elong	2225 Jun 12 01:12	21° ♄ 02'07	1°21'20
minimum elong	2217 May 24 09:37	3° ♄ 04'46	1°36'05	max. Earth dist.	2225 Jun 12 13:25	21° ♄ 03'15	30.86877 AU
max. Earth dist.	2217 May 25 03:11	3° ♄ 06'25	30.82782 AU	retrograde	2225 Sep 26 19:30	23° ♄ 35'34	
retrograde	2217 Sep 08 13:08	5° ♄ 39'03		opposition	2225 Dec 14 11:39	22° ♄ 10'50	-1°-25'-38
opposition	2217 Nov 26 19:45	4° ♄ 13'51	-1°-42'00	min. Earth dist.	2225 Dec 14 00:32	22° ♄ 11'37	28.87331 AU
min. Earth dist.	2217 Nov 26 04:50	4° ♄ 14'54	28.82914 AU	direct	2226 Mar 02 07:10	20° ♄ 46'42	
direct	2218 Feb 12 09:42	2° ♄ 49'56		conjunction	2226 Jun 14 15:32	23° ♄ 17'03	-1°-18'-52
				minimum elong	2226 Jun 14 15:32	23° ♄ 17'03	1°18'53
				max. Earth dist.	2226 Jun 15 03:40	23° ♄ 18'11	30.87626 AU

retrograde	2226 Sep 29 07:45	25°II50'22		minimum elong	2234 Jul 03 08:10	11°☾12'27	0°55'32
opposition	2226 Dec 16 22:33	24°II25'43	-1°-22'-58	max. Earth dist.	2234 Jul 03 12:32	11°☾12'51	30.92981 AU
min. Earth dist.	2226 Dec 16 12:55	24°II26'24	28.88033 AU	retrograde	2234 Oct 17 06:56	13°☾44'26	
direct	2227 Mar 04 19:18	23°II01'34		opposition	2235 Jan 03 11:05	12°☾20'10	0°-57'-35
				min. Earth dist.	2235 Jan 03 06:36	12°☾20'29	28.93532 AU
conjunction	2227 Jun 17 05:47	25°II31'59	-1°-16'-19	direct	2235 Mar 22 17:23	10°☾55'33	
minimum elong	2227 Jun 17 05:47	25°II31'59	1°16'20				
max. Earth dist.	2227 Jun 17 15:59	25°II32'56	30.88297 AU	conjunction	2235 Jul 05 22:14	13°☾26'19	0°-52'-11
retrograde	2227 Oct 01 21:10	28°II05'09		minimum elong	2235 Jul 05 22:15	13°☾26'19	0°52'13
opposition	2227 Dec 19 09:21	26°II40'34	-1°-20'-10	max. Earth dist.	2235 Jul 06 02:58	13°☾26'45	30.94049 AU
min. Earth dist.	2227 Dec 18 23:52	26°II41'14	28.88652 AU	retrograde	2235 Oct 19 18:46	15°☾58'09	
direct	2228 Mar 06 06:59	25°II16'21		opposition	2236 Jan 05 21:32	14°☾33'59	0°-53'-58
				min. Earth dist.	2236 Jan 05 18:18	14°☾34'12	28.94637 AU
conjunction	2228 Jun 18 20:04	27°II46'49	-1°-13'-39	direct	2236 Mar 24 06:06	13°☾09'23	
minimum elong	2228 Jun 18 20:05	27°II46'49	1°13'39				
max. Earth dist.	2228 Jun 19 05:34	27°II47'42	30.88874 AU	conjunction	2236 Jul 07 12:08	15°☾40'12	0°-48'-46
	2228 Aug 29 14:33	0°☾		minimum elong	2236 Jul 07 12:09	15°☾40'12	0°48'46
retrograde	2228 Oct 03 07:02	0°☾19'50		max. Earth dist.	2236 Jul 07 15:11	15°☾40'29	30.95199 AU
	2228 Nov 07 08:58	30°R II		retrograde	2236 Oct 21 07:47	18°☾11'54	
opposition	2228 Dec 20 20:07	28°II55'18	-1°-17'-15	opposition	2237 Jan 07 07:49	16°☾47'50	0°-50'-16
min. Earth dist.	2228 Dec 20 12:29	28°II55'50	28.89200 AU	min. Earth dist.	2237 Jan 07 04:34	16°☾48'04	28.95800 AU
direct	2229 Mar 08 18:13	27°II31'01		direct	2237 Mar 26 18:06	15°☾23'14	
	2229 Jun 20 17:56	0°☾					
conjunction	2229 Jun 21 10:15	0°☾01'31	-1°-10'-52	conjunction	2237 Jul 10 02:11	17°☾54'09	0°-45'-16
minimum elong	2229 Jun 21 10:15	0°☾01'31	1°10'54	minimum elong	2237 Jul 10 02:11	17°☾54'09	0°45'18
max. Earth dist.	2229 Jun 21 18:46	0°☾02'19	30.89421 AU	max. Earth dist.	2237 Jul 10 04:44	17°☾54'23	30.96356 AU
retrograde	2229 Oct 05 19:32	2°☾34'22		retrograde	2237 Oct 23 18:37	20°☾25'42	
opposition	2229 Dec 23 06:43	1°☾09'52	-1°-14'-14	opposition	2238 Jan 09 18:18	19°☾01'45	0°-46'-30
min. Earth dist.	2229 Dec 22 22:55	1°☾10'25	28.89733 AU	min. Earth dist.	2238 Jan 09 16:57	19°☾01'50	28.96943 AU
	2230 Feb 09 16:54	30°R II		direct	2238 Mar 29 04:57	17°☾37'09	
direct	2230 Mar 11 06:10	29°II45'31		conjunction	2238 Jul 12 16:11	20°☾08'07	0°-41'-43
	2230 Apr 09 12:59	0°☾		minimum elong	2238 Jul 12 16:11	20°☾08'07	0°41'43
				max. Earth dist.	2238 Jul 12 17:24	20°☾08'14	30.97472 AU
conjunction	2230 Jun 24 00:14	2°☾16'03	-1°-7'-59	retrograde	2238 Oct 26 07:32	22°☾39'31	
minimum elong	2230 Jun 24 00:14	2°☾16'03	1°08'00	opposition	2239 Jan 12 04:41	21°☾15'40	0°-42'-39
max. Earth dist.	2230 Jun 24 07:38	2°☾16'44	30.89962 AU	min. Earth dist.	2239 Jan 12 03:27	21°☾15'45	28.98001 AU
retrograde	2230 Oct 08 06:18	4°☾48'43		direct	2239 Mar 31 16:58	19°☾51'02	
opposition	2230 Dec 25 17:24	3°☾24'15	-1°-11'-6				
min. Earth dist.	2230 Dec 25 11:17	3°☾24'41	28.90295 AU	conjunction	2239 Jul 15 06:17	22°☾22'04	0°-38'-5
direct	2231 Mar 13 16:00	1°☾59'49		minimum elong	2239 Jul 15 06:17	22°☾22'04	0°38'07
				max. Earth dist.	2239 Jul 15 06:01	22°☾22'03	30.98470 AU
conjunction	2231 Jun 26 14:25	4°☾30'23	-1°-5'-1	retrograde	2239 Oct 28 17:53	24°☾53'18	
minimum elong	2231 Jun 26 14:26	4°☾30'23	1°05'02	opposition	2240 Jan 14 15:06	23°☾29'32	0°-38'-45
max. Earth dist.	2231 Jun 26 21:42	4°☾31'03	30.90559 AU	min. Earth dist.	2240 Jan 14 15:53	23°☾29'28	28.98946 AU
retrograde	2231 Oct 10 17:36	7°☾02'52		direct	2240 Apr 02 02:50	22°☾04'52	
opposition	2231 Dec 28 03:45	5°☾38'26	-1°-7'-52				
min. Earth dist.	2231 Dec 27 21:34	5°☾38'52	28.90919 AU	conjunction	2240 Jul 16 20:22	24°☾35'56	0°-34'-25
direct	2232 Mar 15 05:33	4°☾13'56		minimum elong	2240 Jul 16 20:22	24°☾35'56	0°34'26
				max. Earth dist.	2240 Jul 16 19:27	24°☾35'51	30.99363 AU
conjunction	2232 Jun 28 04:24	6°☾44'32	-1°-1'-56	retrograde	2240 Oct 30 04:40	27°☾07'00	
minimum elong	2232 Jun 28 04:24	6°☾44'32	1°01'57	opposition	2241 Jan 16 01:28	25°☾43'17	0°-34'-48
max. Earth dist.	2232 Jun 28 09:59	6°☾45'03	30.91236 AU	min. Earth dist.	2241 Jan 16 02:32	25°☾43'13	28.99775 AU
retrograde	2232 Oct 12 05:58	9°☾16'51		direct	2241 Apr 04 16:11	24°☾18'35	
opposition	2232 Dec 29 14:18	7°☾52'27	-1°-4'-32				
min. Earth dist.	2232 Dec 29 09:05	7°☾52'49	28.91660 AU	conjunction	2241 Jul 19 10:04	26°☾49'40	0°-30'-42
direct	2233 Mar 17 17:02	6°☾27'54		minimum elong	2241 Jul 19 10:04	26°☾49'40	0°30'44
				max. Earth dist.	2241 Jul 19 07:09	26°☾49'24	31.00152 AU
conjunction	2233 Jun 30 18:18	8°☾58'32	0°-58'-47	retrograde	2241 Nov 01 16:06	29°☾20'34	
minimum elong	2233 Jun 30 18:18	8°☾58'32	0°58'48	opposition	2242 Jan 18 11:49	27°☾56'54	0°-30'-48
max. Earth dist.	2233 Jul 01 00:24	8°☾59'06	30.92039 AU	min. Earth dist.	2242 Jan 18 14:13	27°☾56'43	29.00534 AU
retrograde	2233 Oct 14 17:14	11°☾30'41		direct	2242 Apr 07 03:12	26°☾32'08	
opposition	2234 Jan 01 00:45	10°☾06'21	-1°-1'-6				
min. Earth dist.	2233 Dec 31 19:55	10°☾06'41	28.92521 AU	conjunction	2242 Jul 21 23:59	29°☾03'15	0°-26'-57
direct	2234 Mar 20 05:41	8°☾41'45		minimum elong	2242 Jul 21 23:59	29°☾03'15	0°26'57
				max. Earth dist.	2242 Jul 21 21:04	29°☾02'59	31.00885 AU
conjunction	2234 Jul 03 08:10	11°☾12'26	0°-55'-31		2242 Aug 17 01:58	0°♁	

retrograde	2242 Nov 04 02:39	1°♏33'57		behind sun end	2249 Aug 07 04:12	14°♏34'56	
opposition	2243 Jan 20 21:57	0°♏10'19	0°-26'-46	max. Earth dist.	2249 Aug 06 14:01	14°♏33'40	31.07487 AU
min. Earth dist.	2243 Jan 21 01:12	0°♏10'06	29.01242 AU		2249 Aug 18 11:28	15°♏	
	2243 Jan 27 00:14	30°♏♌		retrograde	2249 Nov 19 09:16	17°♏03'59	
direct	2243 Apr 09 15:42	28°♌45'30		opposition	2250 Feb 04 20:46	15°♏40'52	0°02'08
	2243 Jun 18 12:23	0°♏		min. Earth dist.	2250 Feb 05 04:11	15°♏40'21	29.08080 AU
					2250 Mar 02 02:30	15°♏♌	
conjunction	2243 Jul 24 13:41	1°♏16'38	0°-23'-9	direct	2250 Apr 25 03:03	14°♏15'56	
minimum elong	2243 Jul 24 13:41	1°♏16'38	0°23'11		2250 Jun 16 22:14	15°♏	
max. Earth dist.	2243 Jul 24 08:42	1°♏16'11	31.01597 AU				
retrograde	2243 Nov 06 15:28	3°♏47'09		conjunction	2250 Aug 09 11:25	16°♏47'20	0°04'02
opposition	2244 Jan 23 08:07	2°♏23'34	0°-22'-42	minimum elong	2250 Aug 09 11:25	16°♏47'20	0°04'03
min. Earth dist.	2244 Jan 23 11:54	2°♏23'18	29.01966 AU	behind sun begin	2250 Aug 09 04:54	16°♏46'45	
direct	2244 Apr 11 03:55	0°♏58'41		behind sun end	2250 Aug 09 17:55	16°♏47'54	
				max. Earth dist.	2250 Aug 09 01:29	16°♏46'26	31.08660 AU
conjunction	2244 Jul 26 03:18	3°♏29'51	0°-19'-20	retrograde	2250 Nov 21 20:14	19°♏16'47	
minimum elong	2244 Jul 26 03:18	3°♏29'51	0°19'20	opposition	2251 Feb 07 06:51	17°♏53'45	0°06'18
max. Earth dist.	2244 Jul 25 22:41	3°♏29'25	31.02332 AU	min. Earth dist.	2251 Feb 07 15:32	17°♏53'08	29.09230 AU
retrograde	2244 Nov 08 02:15	6°♏00'11		direct	2251 Apr 27 12:42	16°♏28'48	
opposition	2245 Jan 24 18:18	4°♏36'37	0°-18'-36				
min. Earth dist.	2245 Jan 24 23:18	4°♏36'16	29.02732 AU	conjunction	2251 Aug 12 00:52	19°♏00'15	0°07'55
direct	2245 Apr 13 17:11	3°♏11'42		minimum elong	2251 Aug 12 00:51	19°♏00'15	0°07'54
				behind sun begin	2251 Aug 11 18:58	18°♏59'43	
conjunction	2245 Jul 28 16:42	5°♏42'53	0°-15'-30	behind sun end	2251 Aug 12 06:44	19°♏00'46	
minimum elong	2245 Jul 28 16:43	5°♏42'53	0°15'31	max. Earth dist.	2251 Aug 11 14:49	18°♏59'20	31.09758 AU
behind sun begin	2245 Jul 28 15:32	5°♏42'47		retrograde	2251 Nov 24 06:17	21°♏29'33	
behind sun end	2245 Jul 28 17:53	5°♏42'59		opposition	2252 Feb 09 17:06	20°♏06'36	0°10'27
max. Earth dist.	2245 Jul 28 10:31	5°♏42'19	31.03151 AU	min. Earth dist.	2252 Feb 10 02:45	20°♏05'55	29.10268 AU
retrograde	2245 Nov 10 14:29	8°♏13'03		direct	2252 Apr 29 00:40	18°♏41'38	
opposition	2246 Jan 27 04:18	6°♏49'33	0°-14'-29				
min. Earth dist.	2246 Jan 27 08:58	6°♏49'13	29.03606 AU	conjunction	2252 Aug 13 13:55	21°♏13'04	0°11'46
direct	2246 Apr 16 05:33	5°♏24'35		minimum elong	2252 Aug 13 13:55	21°♏13'04	0°11'47
				behind sun begin	2252 Aug 13 09:23	21°♏12'40	
conjunction	2246 Jul 31 06:09	7°♏55'48	0°-11'-38	behind sun end	2252 Aug 13 18:27	21°♏13'29	
minimum elong	2246 Jul 31 06:09	7°♏55'48	0°11'38	max. Earth dist.	2252 Aug 13 01:43	21°♏11'57	31.10740 AU
behind sun begin	2246 Jul 31 01:32	7°♏55'23		retrograde	2252 Nov 25 18:02	23°♏42'13	
behind sun end	2246 Jul 31 10:45	7°♏56'12		opposition	2253 Feb 11 03:17	22°♏19'19	0°14'35
max. Earth dist.	2246 Jul 30 23:55	7°♏55'14	31.04076 AU	min. Earth dist.	2253 Feb 11 13:31	22°♏18'36	29.11202 AU
retrograde	2246 Nov 13 00:57	10°♏25'48		direct	2253 May 01 12:51	20°♏54'19	
opposition	2247 Jan 29 14:31	9°♏02'22	0°-10'-20				
min. Earth dist.	2247 Jan 29 20:37	9°♏01'56	29.04593 AU	conjunction	2253 Aug 16 03:09	23°♏25'46	0°15'37
direct	2247 Apr 18 16:50	7°♏37'24		minimum elong	2253 Aug 16 03:08	23°♏25'46	0°15'36
				behind sun begin	2253 Aug 16 02:07	23°♏25'41	
conjunction	2247 Aug 02 19:32	10°♏08'39	0°-7'-46	behind sun end	2253 Aug 16 04:10	23°♏25'52	
minimum elong	2247 Aug 02 19:33	10°♏08'39	0°07'47	max. Earth dist.	2253 Aug 15 15:03	23°♏24'40	31.11612 AU
behind sun begin	2247 Aug 02 13:38	10°♏08'08		retrograde	2253 Nov 28 03:58	25°♏54'45	
behind sun end	2247 Aug 03 01:28	10°♏09'11		opposition	2254 Feb 13 13:28	24°♏31'52	0°18'41
max. Earth dist.	2247 Aug 02 12:24	10°♏08'01	31.05132 AU	min. Earth dist.	2254 Feb 14 01:14	24°♏31'03	29.12026 AU
retrograde	2247 Nov 15 13:38	12°♏38'30		direct	2254 May 04 01:50	23°♏06'50	
opposition	2248 Feb 01 00:28	11°♏15'10	0°-6'-11				
min. Earth dist.	2248 Feb 01 06:12	11°♏14'46	29.05696 AU	conjunction	2254 Aug 18 16:05	25°♏38'16	0°19'26
direct	2248 Apr 20 04:50	9°♏50'12		minimum elong	2254 Aug 18 16:05	25°♏38'16	0°19'27
				max. Earth dist.	2254 Aug 18 02:07	25°♏36'59	31.12401 AU
conjunction	2248 Aug 04 08:55	12°♏21'30	0°-3'-53	retrograde	2254 Nov 30 15:54	28°♏07'04	
minimum elong	2248 Aug 04 08:54	12°♏21'30	0°03'54	opposition	2255 Feb 15 23:31	26°♏44'13	0°22'45
behind sun begin	2248 Aug 04 02:23	12°♏22'05		min. Earth dist.	2255 Feb 16 11:12	26°♏43'23	29.12777 AU
behind sun end	2248 Aug 04 15:26	12°♏22'05		direct	2255 May 06 14:28	25°♏19'07	
max. Earth dist.	2248 Aug 04 01:01	12°♏20'48	31.06280 AU				
retrograde	2248 Nov 16 23:16	14°♏51'13		conjunction	2255 Aug 21 05:04	27°♏50'32	0°23'13
opposition	2249 Feb 02 10:41	13°♏28'00	0°-2'-1	minimum elong	2255 Aug 21 05:04	27°♏50'32	0°23'13
min. Earth dist.	2249 Feb 02 17:56	13°♏27'29	29.06885 AU	max. Earth dist.	2255 Aug 20 14:53	27°♏49'14	31.13117 AU
direct	2249 Apr 22 14:23	12°♏03'03			2255 Oct 30 09:32	0°♏	
asc. node	2249 Jul 31 11:41	14°♏20'06		retrograde	2255 Dec 03 02:06	0°♏19'09	
					2256 Jan 06 05:10	30°♏♌	
conjunction	2249 Aug 06 22:05	14°♏34'24	0°00'04	opposition	2256 Feb 18 09:41	28°♏56'19	0°26'47
minimum elong	2249 Aug 06 22:07	14°♏34'24	0°00'04	min. Earth dist.	2256 Feb 18 23:02	28°♏55'23	29.13487 AU
behind sun begin	2249 Aug 06 16:01	14°♏33'52		direct	2256 May 08 02:41	27°♏31'10	

	2256 Aug 21 14:08	0° $\mathring{\mu}$		conjunction	2264 Sep 09 20:32	17° $\mathring{\mu}$ 35'49	0°55'04
				minimum elong	2264 Sep 09 20:32	17° $\mathring{\mu}$ 35'49	0°55'04
conjunction	2256 Aug 22 17:46	0° $\mathring{\mu}$ 02'33	0°26'58	max. Earth dist.	2264 Sep 09 01:46	17° $\mathring{\mu}$ 34'05	31.21810 AU
minimum elong	2256 Aug 22 17:46	0° $\mathring{\mu}$ 02'33	0°26'59	retrograde	2264 Dec 21 23:55	20° $\mathring{\mu}$ 03'25	
max. Earth dist.	2256 Aug 22 02:38	0° $\mathring{\mu}$ 01'10	31.13832 AU	opposition	2265 Mar 09 05:14	18° $\mathring{\mu}$ 41'11	1°00'31
retrograde	2256 Dec 04 13:52	2° $\mathring{\mu}$ 30'59		min. Earth dist.	2265 Mar 09 22:59	18° $\mathring{\mu}$ 39'57	29.22314 AU
opposition	2257 Feb 19 19:43	1° $\mathring{\mu}$ 08'11	0°30'46	direct	2265 May 28 10:51	17° $\mathring{\mu}$ 16'09	
min. Earth dist.	2257 Feb 20 08:38	1° $\mathring{\mu}$ 07'16	29.14213 AU				
	2257 Apr 07 20:36	30° $\mathring{\mu}$ 02'		conjunction	2265 Sep 12 08:31	19° $\mathring{\mu}$ 47'37	0°58'16
direct	2257 May 10 15:50	29° $\mathring{\mu}$ 42'59		minimum elong	2265 Sep 12 08:31	19° $\mathring{\mu}$ 47'37	0°58'16
	2257 Jun 12 00:08	0° $\mathring{\mu}$		max. Earth dist.	2265 Sep 11 12:43	19° $\mathring{\mu}$ 45'47	31.22688 AU
				retrograde	2265 Dec 24 11:59	22° $\mathring{\mu}$ 15'07	
conjunction	2257 Aug 25 06:13	2° $\mathring{\mu}$ 14'21	0°30'41	opposition	2266 Mar 11 15:34	20° $\mathring{\mu}$ 52'55	1°03'53
minimum elong	2257 Aug 25 06:13	2° $\mathring{\mu}$ 14'21	0°30'41	min. Earth dist.	2266 Mar 12 09:04	20° $\mathring{\mu}$ 51'42	29.23124 AU
max. Earth dist.	2257 Aug 24 14:35	2° $\mathring{\mu}$ 12'55	31.14576 AU	direct	2266 May 31 00:35	19° $\mathring{\mu}$ 27'53	
retrograde	2257 Dec 06 22:59	4° $\mathring{\mu}$ 42'38					
opposition	2258 Feb 22 05:52	3° $\mathring{\mu}$ 19'51	0°34'42	conjunction	2266 Sep 14 20:38	21° $\mathring{\mu}$ 59'21	1°01'23
min. Earth dist.	2258 Feb 22 20:04	3° $\mathring{\mu}$ 18'51	29.15006 AU	minimum elong	2266 Sep 14 20:37	21° $\mathring{\mu}$ 59'21	1°01'23
direct	2258 May 13 02:20	1° $\mathring{\mu}$ 54'38		max. Earth dist.	2266 Sep 14 00:01	21° $\mathring{\mu}$ 57'26	31.23428 AU
				retrograde	2266 Dec 26 21:09	24° $\mathring{\mu}$ 26'44	
conjunction	2258 Aug 27 18:46	4° $\mathring{\mu}$ 25'58	0°34'21	opposition	2267 Mar 14 01:57	23° $\mathring{\mu}$ 04'34	1°07'10
minimum elong	2258 Aug 27 18:46	4° $\mathring{\mu}$ 25'58	0°34'21	min. Earth dist.	2267 Mar 14 20:56	23° $\mathring{\mu}$ 03'15	29.23819 AU
max. Earth dist.	2258 Aug 27 03:13	4° $\mathring{\mu}$ 24'32	31.15415 AU	direct	2267 Jun 02 11:35	21° $\mathring{\mu}$ 39'31	
retrograde	2258 Dec 09 08:21	6° $\mathring{\mu}$ 54'06		max. Earth dist.	2267 Sep 16 11:55	24° $\mathring{\mu}$ 09'01	31.24073 AU
opposition	2259 Feb 24 15:49	5° $\mathring{\mu}$ 31'22	0°38'35				
min. Earth dist.	2259 Feb 25 05:45	5° $\mathring{\mu}$ 30'24	29.15894 AU	conjunction	2267 Sep 17 08:37	24° $\mathring{\mu}$ 10'56	1°04'24
direct	2259 May 15 14:53	4° $\mathring{\mu}$ 06'08		minimum elong	2267 Sep 17 08:36	24° $\mathring{\mu}$ 10'56	1°04'24
				retrograde	2267 Dec 29 06:29	26° $\mathring{\mu}$ 38'11	
conjunction	2259 Aug 30 07:11	6° $\mathring{\mu}$ 37'29	0°37'57	opposition	2268 Mar 15 12:22	25° $\mathring{\mu}$ 16'03	1°10'20
minimum elong	2259 Aug 30 07:10	6° $\mathring{\mu}$ 37'29	0°37'56	min. Earth dist.	2268 Mar 16 07:19	25° $\mathring{\mu}$ 14'44	29.24417 AU
max. Earth dist.	2259 Aug 29 14:28	6° $\mathring{\mu}$ 35'57	31.16360 AU	direct	2268 Jun 04 00:44	23° $\mathring{\mu}$ 50'59	
retrograde	2259 Dec 11 18:45	9° $\mathring{\mu}$ 05'30					
opposition	2260 Feb 27 01:59	7° $\mathring{\mu}$ 42'50	0°42'25	conjunction	2268 Sep 18 20:12	26° $\mathring{\mu}$ 22'21	1°07'19
min. Earth dist.	2260 Feb 27 16:24	7° $\mathring{\mu}$ 41'50	29.16913 AU	minimum elong	2268 Sep 18 20:12	26° $\mathring{\mu}$ 22'21	1°07'20
direct	2260 May 17 00:13	6° $\mathring{\mu}$ 17'37		max. Earth dist.	2268 Sep 17 22:20	26° $\mathring{\mu}$ 20'19	31.24638 AU
				retrograde	2268 Dec 30 16:39	28° $\mathring{\mu}$ 49'30	
conjunction	2260 Aug 31 19:28	8° $\mathring{\mu}$ 48'59	0°41'30	opposition	2269 Mar 17 22:47	27° $\mathring{\mu}$ 27'21	1°13'25
minimum elong	2260 Aug 31 19:28	8° $\mathring{\mu}$ 48'59	0°41'31	min. Earth dist.	2269 Mar 18 18:16	27° $\mathring{\mu}$ 26'00	29.24979 AU
max. Earth dist.	2260 Aug 31 03:26	8° $\mathring{\mu}$ 47'30	31.17430 AU	direct	2269 Jun 06 10:44	26° $\mathring{\mu}$ 02'15	
retrograde	2260 Dec 13 03:58	11° $\mathring{\mu}$ 16'55		max. Earth dist.	2269 Sep 20 10:43	28° $\mathring{\mu}$ 31'36	31.25187 AU
opposition	2261 Feb 28 12:09	9° $\mathring{\mu}$ 54'21	0°46'11				
min. Earth dist.	2261 Mar 01 03:01	9° $\mathring{\mu}$ 53'18	29.18020 AU	conjunction	2269 Sep 21 07:53	28° $\mathring{\mu}$ 33'33	1°10'09
direct	2261 May 19 11:38	8° $\mathring{\mu}$ 29'10		minimum elong	2269 Sep 21 07:52	28° $\mathring{\mu}$ 33'33	1°10'09
					2269 Nov 01 16:05	0° $\mathring{\mu}$	
conjunction	2261 Sep 03 07:41	11° $\mathring{\mu}$ 00'33	0°45'00	retrograde	2270 Jan 02 00:38	1° $\mathring{\mu}$ 00'35	
minimum elong	2261 Sep 03 07:40	11° $\mathring{\mu}$ 00'33	0°45'00		2270 Mar 07 06:29	30° $\mathring{\mu}$ 00'	
max. Earth dist.	2261 Sep 02 14:07	10° $\mathring{\mu}$ 58'56	31.18574 AU	opposition	2270 Mar 20 09:07	29° $\mathring{\mu}$ 38'27	1°16'22
retrograde	2261 Dec 15 15:24	13° $\mathring{\mu}$ 28'24		min. Earth dist.	2270 Mar 21 05:02	29° $\mathring{\mu}$ 37'04	29.25532 AU
opposition	2262 Mar 02 22:10	12° $\mathring{\mu}$ 05'56	0°49'53	direct	2270 Jun 08 23:02	28° $\mathring{\mu}$ 13'20	
min. Earth dist.	2262 Mar 03 13:10	12° $\mathring{\mu}$ 04'53	29.19189 AU		2270 Sep 03 11:41	0° $\mathring{\mu}$	
direct	2262 May 21 22:38	10° $\mathring{\mu}$ 40'48					
				conjunction	2270 Sep 23 19:19	0° $\mathring{\mu}$ 44'34	1°12'52
conjunction	2262 Sep 05 20:05	13° $\mathring{\mu}$ 12'14	0°48'26	minimum elong	2270 Sep 23 19:19	0° $\mathring{\mu}$ 44'34	1°12'52
minimum elong	2262 Sep 05 20:04	13° $\mathring{\mu}$ 12'14	0°48'26	max. Earth dist.	2270 Sep 22 20:54	0° $\mathring{\mu}$ 42'29	31.25762 AU
max. Earth dist.	2262 Sep 05 03:02	13° $\mathring{\mu}$ 10'40	31.19727 AU	retrograde	2271 Jan 04 10:38	3° $\mathring{\mu}$ 11'29	
retrograde	2262 Dec 18 01:13	15° $\mathring{\mu}$ 40'01		opposition	2271 Mar 22 19:33	1° $\mathring{\mu}$ 49'21	1°19'14
opposition	2263 Mar 05 08:30	14° $\mathring{\mu}$ 17'37	0°53'30	min. Earth dist.	2271 Mar 23 15:05	1° $\mathring{\mu}$ 48'00	29.26150 AU
min. Earth dist.	2263 Mar 06 00:54	14° $\mathring{\mu}$ 16'29	29.20320 AU	direct	2271 Jun 11 09:48	0° $\mathring{\mu}$ 24'13	
direct	2263 May 24 10:39	12° $\mathring{\mu}$ 52'33		max. Earth dist.	2271 Sep 25 09:24	2° $\mathring{\mu}$ 53'27	31.26408 AU
conjunction	2263 Sep 08 08:15	15° $\mathring{\mu}$ 24'00	0°51'47	conjunction	2271 Sep 26 06:44	2° $\mathring{\mu}$ 55'25	1°15'29
minimum elong	2263 Sep 08 08:15	15° $\mathring{\mu}$ 24'00	0°51'47	minimum elong	2271 Sep 26 06:43	2° $\mathring{\mu}$ 55'25	1°15'29
max. Earth dist.	2263 Sep 07 13:36	15° $\mathring{\mu}$ 22'17	31.20822 AU	retrograde	2272 Jan 06 19:18	5° $\mathring{\mu}$ 22'16	
retrograde	2263 Dec 20 13:12	17° $\mathring{\mu}$ 51'42		opposition	2272 Mar 24 06:08	4° $\mathring{\mu}$ 00'09	1°21'58
opposition	2264 Mar 06 18:45	16° $\mathring{\mu}$ 29'23	0°57'03	min. Earth dist.	2272 Mar 25 02:26	3° $\mathring{\mu}$ 58'44	29.26847 AU
min. Earth dist.	2264 Mar 07 10:51	16° $\mathring{\mu}$ 28'16	29.21374 AU	direct	2272 Jun 12 20:56	2° $\mathring{\mu}$ 35'02	
direct	2264 May 25 22:32	15° $\mathring{\mu}$ 04'20					

conjunction	2272 Sep 27 17:56	5° 2 06'11	1°18'00	retrograde	2281 Jan 25 14:02	24° 2 59'44	
minimum elong	2272 Sep 27 17:56	5° 2 06'11	1°18'00	opposition	2281 Apr 13 07:17	23° 2 37'53	1°40'51
max. Earth dist.	2272 Sep 26 19:46	5° 2 04'08	31.27159 AU	min. Earth dist.	2281 Apr 14 05:51	23° 2 36'20	29.31878 AU
retrograde	2273 Jan 08 06:38	7° 2 32'58		direct	2281 Jul 03 06:21	22° 2 13'03	
opposition	2273 Mar 26 16:35	6° 2 10'53	1°24'35				
min. Earth dist.	2273 Mar 27 11:53	6° 2 09'33	29.27643 AU	conjunction	2281 Oct 17 21:00	24° 2 43'54	1°35'06
direct	2273 Jun 15 08:16	4° 2 45'49		minimum elong	2281 Oct 17 21:00	24° 2 43'54	1°35'06
max. Earth dist.	2273 Sep 29 07:33	7° 2 14'57	31.27979 AU	max. Earth dist.	2281 Oct 16 21:01	24° 2 41'40	31.31809 AU
				retrograde	2282 Jan 28 00:54	27° 2 10'21	
conjunction	2273 Sep 30 05:09	7° 2 16'57	1°20'23	opposition	2282 Apr 15 18:11	25° 2 48'29	1°42'15
minimum elong	2273 Sep 30 05:09	7° 2 16'57	1°20'23	min. Earth dist.	2282 Apr 16 15:42	25° 2 47'01	29.31943 AU
retrograde	2274 Jan 10 16:58	9° 2 43'41		direct	2282 Jul 05 17:55	24° 2 23'37	
opposition	2274 Mar 29 03:15	8° 2 21'40	1°27'05	max. Earth dist.	2282 Oct 19 08:16	26° 2 52'15	31.31861 AU
min. Earth dist.	2274 Mar 29 23:42	8° 2 20'15	29.28486 AU				
direct	2274 Jun 17 20:19	6° 2 56'39		conjunction	2282 Oct 20 07:33	26° 2 54'25	1°36'21
				minimum elong	2282 Oct 20 07:33	26° 2 54'25	1°36'21
conjunction	2274 Oct 02 16:19	9° 2 27'46	1°22'40	retrograde	2283 Jan 30 10:55	29° 2 20'50	
minimum elong	2274 Oct 02 16:19	9° 2 27'46	1°22'40	opposition	2283 Apr 18 05:16	27° 2 58'57	1°43'31
max. Earth dist.	2274 Oct 01 18:17	9° 2 25'43	31.28825 AU	min. Earth dist.	2283 Apr 19 03:36	27° 2 57'25	29.32019 AU
retrograde	2275 Jan 13 04:31	11° 2 54'28		direct	2283 Jul 08 06:12	26° 2 34'05	
opposition	2275 Mar 31 13:47	10° 2 32'30	1°29'27				
min. Earth dist.	2275 Apr 01 09:37	10° 2 31'08	29.29311 AU	conjunction	2283 Oct 22 17:55	29° 2 04'49	1°37'28
direct	2275 Jun 20 09:36	9° 2 07'32		minimum elong	2283 Oct 22 17:55	29° 2 04'49	1°37'28
max. Earth dist.	2275 Oct 04 05:08	11° 2 36'35	31.29614 AU	max. Earth dist.	2283 Oct 21 18:48	29° 2 02'39	31.31969 AU
					2283 Nov 16 23:39	0° 2 00'00	
conjunction	2275 Oct 05 03:32	11° 2 38'40	1°24'50	retrograde	2284 Feb 01 22:07	1° 2 31'13	
minimum elong	2275 Oct 05 03:32	11° 2 38'40	1°24'49	opposition	2284 Apr 19 16:20	0° 2 09'18	1°44'38
retrograde	2276 Jan 15 14:33	14° 2 05'20		min. Earth dist.	2284 Apr 20 13:20	0° 2 07'52	29.32162 AU
opposition	2276 Apr 02 00:40	12° 2 43'25	1°31'41		2284 Apr 25 08:32	30° 2 00'00	
min. Earth dist.	2276 Apr 02 21:35	12° 2 41'59	29.30074 AU	direct	2284 Jul 09 19:17	28° 2 44'28	
direct	2276 Jun 21 20:22	11° 2 18'30			2284 Sep 18 23:27	0° 2 00'00	
				max. Earth dist.	2284 Oct 23 05:14	1° 2 13'01	31.32155 AU
conjunction	2276 Oct 06 14:34	13° 2 49'36	1°26'52				
minimum elong	2276 Oct 06 14:33	13° 2 49'36	1°26'51	conjunction	2284 Oct 24 04:05	1° 2 15'08	1°38'26
max. Earth dist.	2276 Oct 05 16:26	13° 2 47'33	31.30318 AU	minimum elong	2284 Oct 24 04:05	1° 2 15'08	1°38'26
retrograde	2277 Jan 17 00:21	16° 2 16'14		retrograde	2285 Feb 03 07:58	3° 2 41'33	
opposition	2277 Apr 04 11:31	14° 2 54'23	1°33'48	opposition	2285 Apr 22 03:29	2° 2 19'39	1°45'36
min. Earth dist.	2277 Apr 05 08:18	14° 2 52'57	29.30709 AU	min. Earth dist.	2285 Apr 23 00:51	2° 2 18'11	29.32405 AU
direct	2277 Jun 24 09:41	13° 2 29'30		direct	2285 Jul 12 05:54	0° 2 15'45	
max. Earth dist.	2277 Oct 08 02:17	15° 2 58'25	31.30880 AU				
				conjunction	2285 Oct 26 14:23	3° 2 25'29	1°39'16
conjunction	2277 Oct 09 01:37	16° 2 00'35	1°28'46	minimum elong	2285 Oct 26 14:23	3° 2 25'29	1°39'16
minimum elong	2277 Oct 09 01:37	16° 2 00'35	1°28'46	max. Earth dist.	2285 Oct 25 16:32	3° 2 23'27	31.32442 AU
retrograde	2278 Jan 19 11:04	18° 2 27'11		retrograde	2286 Feb 05 17:56	5° 2 51'53	
opposition	2278 Apr 06 22:18	17° 2 05'21	1°35'46	opposition	2286 Apr 24 14:28	4° 2 30'02	1°46'24
min. Earth dist.	2278 Apr 07 19:34	17° 2 03'53	29.31212 AU	min. Earth dist.	2286 Apr 25 11:08	4° 2 28'37	29.32714 AU
direct	2278 Jun 26 20:06	15° 2 40'30		direct	2286 Jul 14 19:31	3° 2 05'17	
				max. Earth dist.	2286 Oct 28 02:10	5° 2 33'48	31.32775 AU
conjunction	2278 Oct 11 12:47	18° 2 11'32	1°30'33				
minimum elong	2278 Oct 11 12:47	18° 2 11'32	1°30'33	conjunction	2286 Oct 29 00:33	5° 2 35'54	1°39'57
max. Earth dist.	2278 Oct 10 14:01	18° 2 09'25	31.31299 AU	minimum elong	2286 Oct 29 00:33	5° 2 35'54	1°39'57
retrograde	2279 Jan 21 19:23	20° 2 38'06		retrograde	2287 Feb 08 05:16	8° 2 02'20	
opposition	2279 Apr 09 09:19	19° 2 16'17	1°37'36	opposition	2287 Apr 27 01:43	6° 2 40'30	1°47'04
min. Earth dist.	2279 Apr 10 07:12	19° 2 14'47	29.31551 AU	min. Earth dist.	2287 Apr 27 22:10	6° 2 39'06	29.33063 AU
direct	2279 Jun 29 08:46	17° 2 51'27		direct	2287 Jul 17 06:29	5° 2 15'49	
conjunction	2279 Oct 13 23:34	20° 2 22'26	1°32'12	conjunction	2287 Oct 31 10:41	7° 2 46'23	1°40'30
minimum elong	2279 Oct 13 23:34	20° 2 22'26	1°32'12	minimum elong	2287 Oct 31 10:41	7° 2 46'23	1°40'30
max. Earth dist.	2279 Oct 12 23:28	20° 2 20'12	31.31570 AU	max. Earth dist.	2287 Oct 30 13:37	7° 2 44'25	31.33112 AU
retrograde	2280 Jan 24 05:28	22° 2 48'58		retrograde	2288 Feb 10 13:28	10° 2 12'52	
opposition	2280 Apr 10 20:17	21° 2 27'09	1°39'18	opposition	2288 Apr 28 13:10	8° 2 51'04	1°47'34
min. Earth dist.	2280 Apr 11 17:50	21° 2 25'40	29.31766 AU	min. Earth dist.	2288 Apr 29 09:46	8° 2 49'39	29.33374 AU
direct	2280 Jun 30 19:29	20° 2 02'18		direct	2288 Jul 18 18:58	7° 2 26'27	
max. Earth dist.	2280 Oct 14 11:17	22° 2 31'05	31.31724 AU				
				conjunction	2288 Nov 01 20:44	9° 2 56'59	1°40'54
conjunction	2280 Oct 15 10:28	22° 2 33'14	1°33'43	minimum elong	2288 Nov 01 20:44	9° 2 56'59	1°40'54
minimum elong	2280 Oct 15 10:28	22° 2 33'14	1°33'43	max. Earth dist.	2288 Oct 31 22:47	9° 2 54'55	31.33396 AU

retrograde	2289 Feb 11 23:33	12°M23'29		retrograde	2297 Mar 01 08:09	29°M46'48	
opposition	2289 May 01 00:27	11°M01'42	1°47'55	opposition	2297 May 18 21:46	28°M24'44	1°45'15
min. Earth dist.	2289 May 01 20:23	11°M00'20	29.33622 AU	min. Earth dist.	2297 May 19 15:38	28°M23'31	29.32038 AU
direct	2289 Jul 21 05:22	9°M37'07		direct	2297 Aug 08 04:42	27°M00'16	
max. Earth dist.	2289 Nov 03 10:04	12°M05'40	31.33580 AU				
conjunction	2289 Nov 04 06:56	12°M07'37	1°41'09	conjunction	2297 Nov 21 13:08	29°M30'08	1°38'04
minimum elong	2289 Nov 04 06:56	12°M07'37	1°41'09	minimum elong	2297 Nov 21 13:08	29°M30'08	1°38'04
retrograde	2290 Feb 14 08:32	14°M34'09		max. Earth dist.	2297 Nov 20 18:40	29°M28'24	31.31863 AU
opposition	2290 May 03 12:04	13°M12'22	1°48'07		2297 Dec 04 21:21	0°M	
min. Earth dist.	2290 May 04 08:52	13°M10'57	29.33741 AU	retrograde	2298 Mar 03 18:37	1°M56'55	
direct	2290 Jul 23 16:09	11°M47'50		opposition	2298 May 21 09:31	0°M34'51	1°44'14
				min. Earth dist.	2298 May 22 02:00	0°M33'44	29.31916 AU
conjunction	2290 Nov 06 16:57	14°M18'15	1°41'16		2298 Jun 12 10:48	30°RM	
minimum elong	2290 Nov 06 16:57	14°M18'15	1°41'15	direct	2298 Aug 10 15:25	29°M10'27	
max. Earth dist.	2290 Nov 05 19:25	14°M16'14	31.33636 AU		2298 Oct 06 01:40	0°M	
	2290 Nov 25 12:48	15°M		conjunction	2298 Nov 23 22:39	1°M40'17	1°37'03
retrograde	2291 Feb 16 19:15	16°M44'49		minimum elong	2298 Nov 23 22:39	1°M40'17	1°37'02
opposition	2291 May 05 23:35	15°M23'01	1°48'10	max. Earth dist.	2298 Nov 23 05:55	1°M38'43	31.31774 AU
min. Earth dist.	2291 May 06 19:15	15°M21'41	29.33725 AU	retrograde	2299 Mar 06 03:54	4°M07'11	
	2291 May 20 05:59	15°RM		opposition	2299 May 23 21:31	2°M45'07	1°43'04
direct	2291 Jul 26 03:45	13°M58'30		min. Earth dist.	2299 May 24 14:14	2°M43'59	29.31850 AU
	2291 Sep 27 17:28	15°M		direct	2299 Aug 13 02:02	1°M20'49	
max. Earth dist.	2291 Nov 08 06:01	16°M26'53	31.33545 AU				
conjunction	2291 Nov 09 03:04	16°M28'51	1°41'14	conjunction	2299 Nov 26 08:04	3°M50'36	1°35'53
minimum elong	2291 Nov 09 03:04	16°M28'51	1°41'14	minimum elong	2299 Nov 26 08:04	3°M50'36	1°35'53
retrograde	2292 Feb 19 05:20	18°M55'27		max. Earth dist.	2299 Nov 25 15:25	3°M49'02	31.31738 AU
opposition	2292 May 07 11:21	17°M33'36	1°48'03	retrograde	2300 Mar 08 15:00	6°M17'37	
min. Earth dist.	2292 May 08 07:53	17°M32'12	29.33574 AU	opposition	2300 May 26 09:27	4°M55'34	1°41'45
direct	2292 Jul 27 15:07	16°M09'06		min. Earth dist.	2300 May 27 00:29	4°M54'33	29.31810 AU
				direct	2300 Aug 15 12:59	3°M31'20	
conjunction	2292 Nov 10 12:55	18°M39'22	1°41'03	conjunction	2300 Nov 28 17:31	6°M01'07	1°34'35
minimum elong	2292 Nov 10 12:55	18°M39'22	1°41'03	minimum elong	2300 Nov 28 17:31	6°M01'07	1°34'34
max. Earth dist.	2292 Nov 09 16:01	18°M37'24	31.33338 AU	max. Earth dist.	2300 Nov 28 01:43	5°M59'38	31.31682 AU
retrograde	2293 Feb 20 16:07	21°M05'58		retrograde	2301 Mar 11 01:42	8°M28'15	
opposition	2293 May 09 22:56	19°M44'05	1°47'47	opposition	2301 May 28 21:36	7°M06'13	1°40'17
min. Earth dist.	2293 May 10 18:24	19°M42'45	29.33297 AU	min. Earth dist.	2301 May 29 13:11	7°M05'09	29.31730 AU
direct	2293 Jul 30 03:41	18°M19'34		direct	2301 Aug 17 23:15	5°M42'04	
				max. Earth dist.	2301 Nov 30 11:45	8°M10'22	31.31570 AU
conjunction	2293 Nov 12 22:47	20°M49'44	1°40'44				
minimum elong	2293 Nov 12 22:47	20°M49'44	1°40'44	conjunction	2301 Dec 01 03:02	8°M11'48	1°33'08
max. Earth dist.	2293 Nov 12 01:49	20°M47'47	31.33014 AU	minimum elong	2301 Dec 01 03:02	8°M11'48	1°33'08
retrograde	2294 Feb 23 02:28	23°M16'22		retrograde	2302 Mar 13 13:02	10°M39'03	
opposition	2294 May 12 10:32	21°M54'24	1°47'23	opposition	2302 May 31 09:38	9°M17'01	1°38'40
min. Earth dist.	2294 May 13 06:28	21°M53'03	29.32948 AU	min. Earth dist.	2302 May 31 23:57	9°M16'03	29.31557 AU
direct	2294 Aug 01 14:44	20°M29'53		direct	2302 Aug 20 10:31	7°M52'56	
conjunction	2294 Nov 15 08:35	22°M59'58	1°40'17	conjunction	2302 Dec 03 12:35	10°M22'39	1°31'34
minimum elong	2294 Nov 15 08:35	22°M59'58	1°40'17	minimum elong	2302 Dec 03 12:36	10°M22'39	1°31'33
max. Earth dist.	2294 Nov 14 12:51	22°M58'07	31.32652 AU	max. Earth dist.	2302 Dec 02 21:17	10°M21'12	31.31341 AU
retrograde	2295 Feb 25 12:30	25°M26'36		retrograde	2303 Mar 16 00:37	12°M50'00	
opposition	2295 May 14 22:17	24°M04'35	1°46'49	opposition	2303 Jun 02 22:02	11°M27'57	1°36'55
min. Earth dist.	2295 May 15 17:18	24°M03'18	29.32575 AU	min. Earth dist.	2303 Jun 03 12:39	11°M26'58	29.31272 AU
direct	2295 Aug 04 04:49	22°M40'04		direct	2303 Aug 22 21:09	10°M03'56	
conjunction	2295 Nov 17 18:02	25°M10'04	1°39'41	conjunction	2303 Dec 05 22:05	12°M33'35	1°29'51
minimum elong	2295 Nov 17 18:02	25°M10'04	1°39'41	minimum elong	2303 Dec 05 22:06	12°M33'35	1°29'51
max. Earth dist.	2295 Nov 16 22:05	25°M08'12	31.32299 AU	max. Earth dist.	2303 Dec 05 08:01	12°M32'16	31.30988 AU
retrograde	2296 Feb 27 23:49	27°M36'44		retrograde	2304 Mar 17 11:59	15°M01'02	
opposition	2296 May 16 10:03	26°M14'40	1°46'07	opposition	2304 Jun 04 10:24	13°M38'58	1°35'02
min. Earth dist.	2296 May 17 04:19	26°M13'26	29.32265 AU	min. Earth dist.	2304 Jun 05 00:16	13°M38'02	29.30833 AU
direct	2296 Aug 05 16:13	24°M50'10		direct	2304 Aug 24 11:06	12°M14'58	
max. Earth dist.	2296 Nov 18 09:31	27°M18'23	31.32030 AU				
				conjunction	2304 Dec 07 07:35	14°M44'34	1°28'01
conjunction	2296 Nov 19 03:41	27°M20'05	1°38'57	minimum elong	2304 Dec 07 07:35	14°M44'34	1°28'01
minimum elong	2296 Nov 19 03:41	27°M20'05	1°38'57	max. Earth dist.	2304 Dec 06 16:53	14°M43'11	31.30482 AU

retrograde	2305 Mar 20 00:20	17°♄12'06		minimum elong	2312 Dec 24 09:59	2°♄10'22	1°09'06
opposition	2305 Jun 06 22:39	15°♄49'58	1°33'00	max. Earth dist.	2312 Dec 24 02:58	2°♄09'42	31.25388 AU
min. Earth dist.	2305 Jun 07 12:06	15°♄49'04	29.30260 AU	retrograde	2313 Apr 06 12:52	4°♄38'44	
direct	2305 Aug 26 22:33	14°♄25'59		opposition	2313 Jun 25 02:44	3°♄16'10	1°12'19
				min. Earth dist.	2313 Jun 25 09:35	3°♄15'42	29.25176 AU
conjunction	2305 Dec 09 17:12	16°♄55'31	1°26'04	direct	2313 Sep 13 19:26	1°♄52'25	
minimum elong	2305 Dec 09 17:12	16°♄55'31	1°26'04				
max. Earth dist.	2305 Dec 09 03:56	16°♄54'16	31.29843 AU	conjunction	2313 Dec 26 19:17	4°♄21'23	1°06'14
retrograde	2306 Mar 22 09:16	19°♄23'07		minimum elong	2313 Dec 26 19:17	4°♄21'23	1°06'15
opposition	2306 Jun 09 11:07	18°♄00'55	1°30'51	max. Earth dist.	2313 Dec 26 11:56	4°♄20'41	31.24873 AU
min. Earth dist.	2306 Jun 10 00:27	18°♄00'01	29.29553 AU	retrograde	2314 Apr 09 02:02	6°♄49'54	
direct	2306 Aug 29 11:32	16°♄36'57		opposition	2314 Jun 27 15:31	5°♄27'19	1°09'12
				min. Earth dist.	2314 Jun 27 21:39	5°♄26'54	29.24633 AU
conjunction	2306 Dec 12 02:26	19°♄06'21	1°23'59	direct	2314 Sep 16 05:58	4°♄03'38	
minimum elong	2306 Dec 12 02:26	19°♄06'21	1°23'59				
max. Earth dist.	2306 Dec 11 12:51	19°♄05'05	31.29106 AU	conjunction	2314 Dec 29 04:41	6°♄32'34	1°03'17
retrograde	2307 Mar 24 20:08	21°♄34'01		minimum elong	2314 Dec 29 04:42	6°♄32'34	1°03'17
opposition	2307 Jun 11 23:32	20°♄11'45	1°28'34	max. Earth dist.	2314 Dec 28 23:02	6°♄32'02	31.24283 AU
min. Earth dist.	2307 Jun 12 11:31	20°♄10'56	29.28789 AU	retrograde	2315 Apr 11 12:27	9°♄01'15	
direct	2307 Aug 31 23:55	18°♄47'46		opposition	2315 Jun 30 04:30	7°♄38'38	1°05'59
				min. Earth dist.	2315 Jun 30 10:21	7°♄38'15	29.23985 AU
conjunction	2307 Dec 14 11:49	21°♄17'05	1°21'47	direct	2315 Sep 18 18:38	6°♄15'01	
minimum elong	2307 Dec 14 11:49	21°♄17'05	1°21'48				
max. Earth dist.	2307 Dec 13 23:54	21°♄15'57	31.28332 AU	conjunction	2315 Dec 31 14:07	8°♄43'55	1°00'14
retrograde	2308 Mar 26 05:48	23°♄44'49		minimum elong	2315 Dec 31 14:07	8°♄43'55	1°00'14
opposition	2308 Jun 13 12:03	22°♄22'27	1°26'10	max. Earth dist.	2315 Dec 31 08:06	8°♄43'21	31.23587 AU
min. Earth dist.	2308 Jun 14 00:07	22°♄21'38	29.28027 AU	retrograde	2316 Apr 13 00:59	11°♄12'45	
direct	2308 Sep 02 11:51	20°♄58'28		opposition	2316 Jul 01 17:18	9°♄50'06	1°02'41
				min. Earth dist.	2316 Jul 01 21:57	9°♄49'47	29.23224 AU
conjunction	2308 Dec 15 20:58	23°♄27'41	1°19'29	direct	2316 Sep 20 06:41	8°♄26'31	
minimum elong	2308 Dec 15 20:58	23°♄27'41	1°19'28				
max. Earth dist.	2308 Dec 15 09:31	23°♄26'36	31.27605 AU	conjunction	2317 Jan 01 23:41	10°♄55'23	0°57'05
retrograde	2309 Mar 28 16:01	25°♄55'31		minimum elong	2317 Jan 01 23:41	10°♄55'23	0°57'05
opposition	2309 Jun 16 00:26	24°♄33'05	1°23'38	max. Earth dist.	2317 Jan 01 18:54	10°♄54'56	31.22748 AU
min. Earth dist.	2309 Jun 16 10:25	24°♄32'24	29.27327 AU	retrograde	2317 Apr 15 11:51	13°♄24'22	
direct	2309 Sep 04 23:29	23°♄09'06		opposition	2317 Jul 04 06:20	12°♄01'39	0°59'17
				min. Earth dist.	2317 Jul 04 11:23	12°♄01'19	29.22306 AU
conjunction	2309 Dec 18 06:13	25°♄38'15	1°17'03	direct	2317 Sep 22 18:51	10°♄38'06	
minimum elong	2309 Dec 18 06:13	25°♄38'15	1°17'03				
max. Earth dist.	2309 Dec 17 19:49	25°♄37'16	31.26941 AU	conjunction	2318 Jan 04 09:10	13°♄06'55	0°53'52
retrograde	2310 Mar 31 02:03	28°♄06'11		minimum elong	2318 Jan 04 09:10	13°♄06'55	0°53'52
opposition	2310 Jun 18 12:57	26°♄43'42	1°20'59	max. Earth dist.	2318 Jan 04 04:33	13°♄06'29	31.21769 AU
min. Earth dist.	2310 Jun 18 22:57	26°♄43'01	29.26709 AU	retrograde	2318 Apr 17 22:40	15°♄36'02	
direct	2310 Sep 07 09:37	25°♄19'46		opposition	2318 Jul 06 19:11	14°♄13'15	0°55'48
				min. Earth dist.	2318 Jul 06 22:34	14°♄13'01	29.21252 AU
conjunction	2310 Dec 20 15:29	27°♄48'50	1°14'31	direct	2318 Sep 25 06:54	12°♄49'42	
minimum elong	2310 Dec 20 15:30	27°♄48'50	1°14'30				
max. Earth dist.	2310 Dec 20 06:19	27°♄47'58	31.26379 AU	conjunction	2319 Jan 06 18:39	15°♄18'26	0°50'34
	2311 Mar 01 17:37	0°♄		minimum elong	2319 Jan 06 18:39	15°♄18'26	0°50'34
retrograde	2311 Apr 02 13:07	0°♄16'54		max. Earth dist.	2319 Jan 06 14:39	15°♄18'04	31.20662 AU
	2311 May 05 08:11	30°♄		retrograde	2319 Apr 20 09:05	17°♄47'41	
opposition	2311 Jun 21 01:30	28°♄54'23	1°18'12	opposition	2319 Jul 09 08:16	16°♄24'48	0°52'14
min. Earth dist.	2311 Jun 21 09:35	28°♄53'50	29.26169 AU	min. Earth dist.	2319 Jul 09 11:54	16°♄24'33	29.20110 AU
direct	2311 Sep 09 20:38	27°♄30'30		direct	2319 Sep 27 17:29	15°♄01'15	
conjunction	2311 Dec 23 00:36	29°♄59'32	1°11'52	conjunction	2320 Jan 09 04:01	17°♄29'55	0°47'12
minimum elong	2311 Dec 23 00:36	29°♄59'32	1°11'52	minimum elong	2320 Jan 09 04:01	17°♄29'55	0°47'12
max. Earth dist.	2311 Dec 22 15:51	29°♄58'42	31.25870 AU	max. Earth dist.	2320 Jan 09 01:17	17°♄29'39	31.19509 AU
	2311 Dec 23 05:37	0°♄		retrograde	2320 Apr 21 20:04	19°♄59'17	
retrograde	2312 Apr 04 01:15	2°♄27'45		opposition	2320 Jul 10 21:10	18°♄36'18	0°48'36
opposition	2312 Jun 22 14:12	1°♄05'12	1°15'19	min. Earth dist.	2320 Jul 10 22:59	18°♄36'11	29.18940 AU
min. Earth dist.	2312 Jun 22 22:07	1°♄04'40	29.25680 AU	direct	2320 Sep 29 04:47	17°♄12'44	
	2312 Aug 07 14:09	30°♄					
direct	2312 Sep 11 06:53	29°♄41'23		conjunction	2321 Jan 10 13:22	19°♄41'19	0°43'47
	2312 Oct 15 03:37	0°♄		minimum elong	2321 Jan 10 13:22	19°♄41'20	0°43'46
				max. Earth dist.	2321 Jan 10 10:56	19°♄41'06	31.18353 AU
conjunction	2312 Dec 24 09:59	2°♄10'22	1°09'06	retrograde	2321 Apr 24 08:06	22°♄10'50	

opposition	2321 Jul 13 10:00	20° $\overline{3}$ 47'45	0°44'54	max. Earth dist.	2329 Jan 27 23:30	7° \approx 16'11	31.11365 AU
min. Earth dist.	2321 Jul 13 11:33	20° $\overline{3}$ 47'39	29.17822 AU	retrograde	2329 May 12 08:46	9° \approx 46'30	
direct	2321 Oct 01 15:13	19° $\overline{3}$ 24'11		opposition	2329 Jul 31 18:30	8° \approx 22'59	0°13'16
				min. Earth dist.	2329 Jul 31 12:15	8° \approx 23'24	29.10864 AU
conjunction	2322 Jan 12 22:51	21° $\overline{3}$ 52'43	0°40'17	direct	2329 Oct 19 12:18	6° \approx 59'43	
minimum elong	2322 Jan 12 22:51	21° $\overline{3}$ 52'43	0°40'17				
max. Earth dist.	2322 Jan 12 22:27	21° $\overline{3}$ 52'41	31.17276 AU	conjunction	2330 Jan 30 03:53	9° \approx 28'02	0°10'33
retrograde	2322 Apr 26 19:55	24° $\overline{3}$ 22'22		minimum elong	2330 Jan 30 03:52	9° \approx 28'02	0°10'33
opposition	2322 Jul 15 22:58	22° $\overline{3}$ 59'13	0°41'08	behind sun begin	2330 Jan 29 22:50	9° \approx 27'34	
min. Earth dist.	2322 Jul 15 23:00	22° $\overline{3}$ 59'13	29.16786 AU	behind sun end	2330 Jan 30 08:54	9° \approx 28'29	
direct	2322 Oct 04 03:15	21° $\overline{3}$ 35'40		max. Earth dist.	2330 Jan 30 09:12	9° \approx 28'31	31.10328 AU
				retrograde	2330 May 14 21:02	11° \approx 59'01	
conjunction	2323 Jan 15 08:04	24° $\overline{3}$ 04'09	0°36'43	opposition	2330 Aug 03 07:53	10° \approx 35'25	0°09'09
minimum elong	2323 Jan 15 08:04	24° $\overline{3}$ 04'09	0°36'43	min. Earth dist.	2330 Aug 03 01:46	10° \approx 35'50	29.09774 AU
max. Earth dist.	2323 Jan 15 07:45	24° $\overline{3}$ 04'08	31.16301 AU	direct	2330 Oct 21 22:40	9° \approx 12'09	
retrograde	2323 Apr 29 09:08	26° $\overline{3}$ 33'58					
opposition	2323 Jul 18 11:59	25° $\overline{3}$ 10'45	0°37'18	conjunction	2331 Feb 01 13:51	11° \approx 40'24	0°06'42
min. Earth dist.	2323 Jul 18 10:49	25° $\overline{3}$ 10'49	29.15867 AU	minimum elong	2331 Feb 01 13:51	11° \approx 40'24	0°06'43
direct	2323 Oct 06 12:58	23° $\overline{3}$ 47'14		behind sun begin	2331 Feb 01 07:51	11° \approx 39'52	
				behind sun end	2331 Feb 01 19:50	11° \approx 40'57	
conjunction	2324 Jan 17 17:36	26° $\overline{3}$ 15'42	0°33'07	max. Earth dist.	2331 Feb 01 20:50	11° \approx 41'03	31.09186 AU
minimum elong	2324 Jan 17 17:36	26° $\overline{3}$ 15'42	0°33'07	retrograde	2331 May 17 08:28	14° \approx 11'31	
max. Earth dist.	2324 Jan 17 19:21	26° $\overline{3}$ 15'51	31.15427 AU	opposition	2331 Aug 05 21:08	12° \approx 47'49	0°05'01
retrograde	2324 Apr 30 20:20	28° $\overline{3}$ 45'40		min. Earth dist.	2331 Aug 05 13:58	12° \approx 48'18	29.08579 AU
opposition	2324 Jul 20 00:54	27° $\overline{3}$ 22'24	0°33'24	direct	2331 Oct 24 10:40	11° \approx 24'32	
min. Earth dist.	2324 Jul 19 23:04	27° $\overline{3}$ 22'31	29.15030 AU				
direct	2324 Oct 08 01:19	25° $\overline{3}$ 58'56		conjunction	2332 Feb 03 23:45	13° \approx 52'44	0°02'51
				minimum elong	2332 Feb 03 23:46	13° \approx 52'44	0°02'52
conjunction	2325 Jan 19 03:02	28° $\overline{3}$ 27'22	0°29'27	behind sun begin	2332 Feb 03 17:23	13° \approx 52'10	
minimum elong	2325 Jan 19 03:02	28° $\overline{3}$ 27'22	0°29'26	behind sun end	2332 Feb 04 06:08	13° \approx 53'19	
max. Earth dist.	2325 Jan 19 04:54	28° $\overline{3}$ 27'32	31.14634 AU	max. Earth dist.	2332 Feb 04 06:25	13° \approx 53'20	31.07970 AU
	2325 Mar 03 23:42	0° \approx			2332 Mar 05 13:43	15° \approx	
retrograde	2325 May 03 10:14	0° \approx 57'30		retrograde	2332 May 18 21:51	16° \approx 23'59	
	2325 Jul 06 10:15	30° \overline{R} $\overline{3}$		opposition	2332 Aug 07 10:12	15° \approx 00'10	0°00'53
opposition	2325 Jul 22 13:52	29° $\overline{3}$ 34'11	0°29'28	min. Earth dist.	2332 Aug 07 02:21	15° \approx 00'42	29.07358 AU
min. Earth dist.	2325 Jul 22 10:26	29° $\overline{3}$ 34'25	29.14257 AU		2332 Aug 07 12:40	15° \overline{R} \approx	
direct	2325 Oct 10 13:26	28° $\overline{3}$ 10'46		direct	2332 Oct 25 20:28	13° \approx 36'51	
	2326 Jan 04 02:35	0° \approx		desc. node	2332 Oct 25 05:09	13° \approx 36'52	
					2333 Jan 06 21:19	15° \approx	
conjunction	2326 Jan 21 12:34	0° \approx 39'12	0°25'44	conjunction	2333 Feb 05 09:49	16° \approx 05'01	0°-1'-7
minimum elong	2326 Jan 21 12:34	0° \approx 39'12	0°25'44	minimum elong	2333 Feb 05 09:49	16° \approx 05'01	0°01'08
max. Earth dist.	2326 Jan 21 16:01	0° \approx 39'32	31.13864 AU	behind sun begin	2333 Feb 05 03:25	16° \approx 04'26	
retrograde	2326 May 05 21:56	3° \approx 09'31		behind sun end	2333 Feb 05 16:12	16° \approx 05'35	
opposition	2326 Jul 25 03:03	1° \approx 46'10	0°25'28	max. Earth dist.	2333 Feb 05 18:16	16° \approx 05'48	31.06744 AU
min. Earth dist.	2326 Jul 24 23:42	1° \approx 46'24	29.13489 AU	retrograde	2333 May 21 09:28	18° \approx 36'23	
direct	2326 Oct 13 01:13	0° \approx 22'49		opposition	2333 Aug 09 23:20	17° \approx 12'28	0°-3'-14
				min. Earth dist.	2333 Aug 09 14:52	17° \approx 13'03	29.06153 AU
conjunction	2327 Jan 23 22:14	2° \approx 51'13	0°21'59	direct	2333 Oct 28 09:00	15° \approx 49'09	
minimum elong	2327 Jan 23 22:14	2° \approx 51'13	0°21'58				
max. Earth dist.	2327 Jan 24 02:15	2° \approx 51'35	31.13101 AU	conjunction	2334 Feb 07 19:37	18° \approx 17'16	0°-5'-1
retrograde	2327 May 08 09:40	5° \approx 21'42		minimum elong	2334 Feb 07 19:38	18° \approx 17'16	0°05'02
opposition	2327 Jul 27 16:10	3° \approx 58'19	0°21'26	behind sun begin	2334 Feb 07 13:24	18° \approx 16'42	
min. Earth dist.	2327 Jul 27 11:00	3° \approx 58'40	29.12703 AU	behind sun end	2334 Feb 08 01:51	18° \approx 17'50	
direct	2327 Oct 15 13:14	2° \approx 35'00		max. Earth dist.	2334 Feb 08 04:19	18° \approx 18'04	31.05582 AU
				retrograde	2334 May 23 23:48	20° \approx 48'47	
conjunction	2328 Jan 26 07:58	5° \approx 03'23	0°18'11	opposition	2334 Aug 12 12:25	19° \approx 24'46	0°-7'-22
minimum elong	2328 Jan 26 07:57	5° \approx 03'23	0°18'11	min. Earth dist.	2334 Aug 12 02:17	19° \approx 25'28	29.05044 AU
max. Earth dist.	2328 Jan 26 12:31	5° \approx 03'48	31.12276 AU	direct	2334 Oct 30 20:46	18° \approx 01'27	
retrograde	2328 May 09 21:05	7° \approx 34'03					
opposition	2328 Jul 29 05:28	6° \approx 10'36	0°17'22	conjunction	2335 Feb 10 05:44	20° \approx 29'34	0°-8'-51
min. Earth dist.	2328 Jul 29 00:41	6° \approx 10'55	29.11841 AU	minimum elong	2335 Feb 10 05:44	20° \approx 29'33	0°08'52
direct	2328 Oct 17 00:17	4° \approx 47'19		behind sun begin	2335 Feb 10 00:11	20° \approx 29'03	
				behind sun end	2335 Feb 10 11:16	20° \approx 30'04	
conjunction	2329 Jan 27 17:56	7° \approx 15'40	0°14'23	max. Earth dist.	2335 Feb 10 16:00	20° \approx 30'31	31.04519 AU
minimum elong	2329 Jan 27 17:56	7° \approx 15'40	0°14'22	retrograde	2335 May 26 11:49	23° \approx 01'15	
behind sun begin	2329 Jan 27 14:51	7° \approx 15'23		opposition	2335 Aug 15 01:35	21° \approx 37'10	0°-11'-30
behind sun end	2329 Jan 27 21:01	7° \approx 15'57					

min. Earth dist.	2335 Aug 14 15:20	21° 33 37'52	29.04048 AU	retrograde	2343 Jun 13 19:10	10° 18 47'48	
direct	2335 Nov 02 08:13	20° 33 13'52		opposition	2343 Sep 02 11:05	9° 18 23'23	0°-43'-33
				min. Earth dist.	2343 Sep 01 19:05	9° 18 24'29	28.97451 AU
conjunction	2336 Feb 12 15:47	22° 33 41'58	0°-12'-42	direct	2343 Nov 20 01:42	8° 18 00'21	
minimum elong	2336 Feb 12 15:47	22° 33 41'58	0°12'42				
behind sun begin	2336 Feb 12 11:39	22° 33 41'35		conjunction	2344 Mar 01 04:36	10° 18 28'31	0°-42'-29
behind sun end	2336 Feb 12 19:54	22° 33 42'20		minimum elong	2344 Mar 01 04:36	10° 18 28'31	0°42'30
max. Earth dist.	2336 Feb 13 02:54	22° 33 43'00	31.03591 AU	max. Earth dist.	2344 Mar 01 20:38	10° 18 30'02	30.96866 AU
retrograde	2336 May 28 00:33	25° 33 13'49		retrograde	2344 Jun 15 07:13	13° 18 01'42	
opposition	2336 Aug 16 14:36	23° 33 49'41	0°-15'-37	min. Earth dist.	2344 Sep 03 08:48	11° 18 38'15	28.96329 AU
min. Earth dist.	2336 Aug 16 02:20	23° 33 50'32	29.03172 AU	opposition	2344 Sep 04 00:19	11° 18 37'11	0°-47'-20
direct	2336 Nov 03 20:19	22° 33 26'26		direct	2344 Nov 21 13:04	10° 18 14'06	
conjunction	2337 Feb 14 01:56	24° 33 54'33	0°-16'-32	conjunction	2345 Mar 03 15:34	12° 18 42'15	0°-46'00
minimum elong	2337 Feb 14 01:56	24° 33 54'33	0°16'33	minimum elong	2345 Mar 03 15:33	12° 18 42'15	0°46'01
max. Earth dist.	2337 Feb 14 13:43	24° 33 55'39	31.02755 AU	max. Earth dist.	2345 Mar 04 08:02	12° 18 43'48	30.95734 AU
retrograde	2337 May 30 12:52	27° 33 26'35		retrograde	2345 Jun 17 21:13	15° 18 15'30	
opposition	2337 Aug 19 03:43	26° 33 02'25	0°-19'-42	opposition	2345 Sep 06 13:18	13° 18 50'53	0°-51'-3
min. Earth dist.	2337 Aug 18 15:36	26° 33 03'15	29.02388 AU	min. Earth dist.	2345 Sep 05 20:16	13° 18 52'03	28.95200 AU
direct	2337 Nov 06 07:21	24° 33 39'14		direct	2345 Nov 24 02:15	12° 18 27'46	
conjunction	2338 Feb 16 12:16	27° 33 07'21	0°-20'-21	conjunction	2346 Mar 06 02:31	14° 18 55'53	0°-49'-26
minimum elong	2338 Feb 16 12:16	27° 33 07'21	0°20'21	minimum elong	2346 Mar 06 02:31	14° 18 55'53	0°49'27
max. Earth dist.	2338 Feb 17 01:30	27° 33 08'36	31.02013 AU	max. Earth dist.	2346 Mar 06 19:24	14° 18 57'29	30.94615 AU
retrograde	2338 Jun 02 01:25	29° 33 39'34		retrograde	2346 Jun 20 10:39	17° 18 29'15	
opposition	2338 Aug 21 16:51	28° 33 15'24	0°-23'-47	min. Earth dist.	2346 Sep 08 09:46	16° 18 05'40	28.94130 AU
min. Earth dist.	2338 Aug 21 02:57	28° 33 16'21	29.01666 AU	opposition	2346 Sep 09 02:29	16° 18 04'32	0°-54'-41
direct	2338 Nov 08 19:18	26° 33 52'16		direct	2346 Nov 26 14:17	14° 18 41'23	
conjunction	2339 Feb 18 22:30	29° 33 20'24	0°-24'-8	conjunction	2347 Mar 08 13:35	17° 18 09'29	0°-52'-48
minimum elong	2339 Feb 18 22:30	29° 33 20'24	0°24'09	minimum elong	2347 Mar 08 13:34	17° 18 09'29	0°52'49
max. Earth dist.	2339 Feb 19 11:44	29° 33 21'39	31.01305 AU	max. Earth dist.	2347 Mar 09 07:49	17° 18 11'12	30.93590 AU
	2339 Mar 08 11:54	0° 18		retrograde	2347 Jun 22 23:13	19° 18 42'57	
retrograde	2339 Jun 04 13:51	1° 18 52'50		opposition	2347 Sep 11 15:27	18° 18 18'08	0°-58'-14
opposition	2339 Aug 24 06:11	0° 18 28'38	0°-27'-49	min. Earth dist.	2347 Sep 10 21:01	18° 18 19'24	28.93157 AU
min. Earth dist.	2339 Aug 23 16:25	0° 18 29'34	29.00971 AU	direct	2347 Nov 29 03:11	16° 18 54'58	
	2339 Sep 11 01:45	30° 18					
direct	2339 Nov 11 05:12	29° 33 05'33		conjunction	2348 Mar 10 00:41	19° 18 23'03	0°-56'-5
	2340 Jan 07 22:40	0° 18		minimum elong	2348 Mar 10 00:41	19° 18 23'03	0°56'05
conjunction	2340 Feb 21 09:12	1° 18 33'42	0°-27'-54	max. Earth dist.	2348 Mar 10 18:47	19° 18 24'46	30.92668 AU
minimum elong	2340 Feb 21 09:12	1° 18 33'42	0°27'54	retrograde	2348 Jun 24 11:28	21° 18 56'39	
max. Earth dist.	2340 Feb 22 00:05	1° 18 35'07	31.00594 AU	min. Earth dist.	2348 Sep 12 10:04	20° 18 33'02	28.92307 AU
retrograde	2340 Jun 06 01:32	4° 18 06'19		opposition	2348 Sep 13 04:20	20° 18 31'46	-1°-1'-42
opposition	2340 Aug 25 19:14	2° 18 42'06	0°-31'-50	direct	2348 Nov 30 13:27	19° 18 08'36	
min. Earth dist.	2340 Aug 25 04:37	2° 18 43'06	29.00234 AU	conjunction	2349 Mar 12 12:00	21° 18 36'42	0°-59'-17
direct	2340 Nov 12 16:22	1° 18 19'03		minimum elong	2349 Mar 12 12:00	21° 18 36'42	0°59'18
				max. Earth dist.	2349 Mar 13 07:52	21° 18 38'35	30.91871 AU
conjunction	2341 Feb 22 19:52	3° 18 47'14	0°-31'-37	retrograde	2349 Jun 26 23:13	24° 18 10'24	
minimum elong	2341 Feb 22 19:52	3° 18 47'14	0°31'38	opposition	2349 Sep 15 17:15	22° 18 45'30	-1°-5'-5
max. Earth dist.	2341 Feb 23 10:05	3° 18 48'35	30.99822 AU	min. Earth dist.	2349 Sep 14 21:51	22° 18 46'50	28.91565 AU
retrograde	2341 Jun 08 15:48	6° 18 20'02		direct	2349 Dec 03 01:22	21° 18 22'21	
opposition	2341 Aug 28 08:31	4° 18 55'46	0°-35'-47				
min. Earth dist.	2341 Aug 27 17:36	4° 18 56'47	28.99425 AU	conjunction	2350 Mar 14 23:07	23° 18 50'28	-1°-2'-24
direct	2341 Nov 15 01:44	3° 18 32'45		minimum elong	2350 Mar 14 23:06	23° 18 50'28	1°02'25
				max. Earth dist.	2350 Mar 15 18:36	23° 18 52'19	30.91185 AU
conjunction	2342 Feb 25 06:41	6° 18 00'57	0°-35'-18	retrograde	2350 Jun 29 13:19	26° 18 24'19	
minimum elong	2342 Feb 25 06:41	6° 18 00'57	0°35'18	min. Earth dist.	2350 Sep 17 10:26	25° 18 00'44	28.90934 AU
max. Earth dist.	2342 Feb 25 22:15	6° 18 02'25	30.98945 AU	opposition	2350 Sep 18 06:16	24° 18 59'22	-1°-8'-22
retrograde	2342 Jun 11 04:05	8° 18 33'53		direct	2350 Dec 05 11:02	23° 18 36'14	
opposition	2342 Aug 30 21:53	7° 18 09'33	0°-39'-42				
min. Earth dist.	2342 Aug 30 06:48	7° 18 10'35	28.98488 AU	conjunction	2351 Mar 17 10:38	26° 18 04'24	-1°-5'-26
direct	2342 Nov 17 14:15	5° 18 46'33		minimum elong	2351 Mar 17 10:38	26° 18 04'24	1°05'27
				max. Earth dist.	2351 Mar 18 07:39	26° 18 06'24	30.90581 AU
conjunction	2343 Feb 27 17:36	8° 18 14'44	0°-38'-55	retrograde	2351 Jul 02 01:09	28° 18 38'23	
minimum elong	2343 Feb 27 17:36	8° 18 14'44	0°38'57	opposition	2351 Sep 20 19:08	27° 18 13'26	-1°-11'-34
max. Earth dist.	2343 Feb 28 08:43	8° 18 16'10	30.97958 AU	min. Earth dist.	2351 Sep 19 23:05	27° 18 14'49	28.90360 AU

direct	2351 Dec 07 22:40	25° ✕ 50'20		direct	2359 Dec 25 20:32	13° Υ 47'08	
conjunction	2352 Mar 18 22:14	28° ✕ 18'33	-1°-8'-21	conjunction	2360 Apr 05 22:52	16° Υ 15'36	-1°-27'-45
minimum elong	2352 Mar 18 22:14	28° ✕ 18'33	1°08'22	minimum elong	2360 Apr 05 22:52	16° Υ 15'36	1°27'45
max. Earth dist.	2352 Mar 19 18:50	28° ✕ 20'30	30.90027 AU	max. Earth dist.	2360 Apr 06 21:47	16° Υ 17'47	30.83941 AU
	2352 May 06 13:50	0° Υ		retrograde	2360 Jul 22 01:29	18° Υ 50'21	
retrograde	2352 Jul 03 16:07	0° Υ 52'41		opposition	2360 Oct 10 14:05	17° Υ 24'59	-1°-34'-51
	2352 Sep 02 08:19	30° ✕		min. Earth dist.	2360 Oct 09 16:44	17° Υ 26'28	28.83734 AU
min. Earth dist.	2352 Sep 21 11:14	29° ✕ 29'09	28.89810 AU	direct	2360 Dec 27 08:23	16° Υ 01'42	
opposition	2352 Sep 22 08:02	29° ✕ 27'43	-1°-14'-38				
direct	2352 Dec 09 09:09	28° ✕ 04'38		conjunction	2361 Apr 08 11:03	18° Υ 30'12	-1°-29'-36
	2353 Mar 06 20:19	0° Υ		minimum elong	2361 Apr 08 11:03	18° Υ 30'12	1°29'38
				max. Earth dist.	2361 Apr 09 09:32	18° Υ 32'19	30.83374 AU
conjunction	2353 Mar 21 09:59	0° Υ 32'55	-1°-11'-11	retrograde	2361 Jul 24 15:28	21° Υ 05'00	
minimum elong	2353 Mar 21 09:59	0° Υ 32'55	1°11'13	min. Earth dist.	2361 Oct 12 04:19	19° Υ 41'08	28.83248 AU
max. Earth dist.	2353 Mar 22 07:21	0° Υ 34'57	30.89447 AU	opposition	2361 Oct 13 02:31	19° Υ 39'35	-1°-36'-46
retrograde	2353 Jul 06 04:44	3° Υ 07'11		direct	2361 Dec 29 18:25	18° Υ 16'17	
opposition	2353 Sep 24 21:00	1° Υ 42'12	-1°-17'-36				
min. Earth dist.	2353 Sep 24 00:55	1° Υ 43'36	28.89212 AU	conjunction	2362 Apr 10 23:29	20° Υ 44'50	-1°-31'-20
direct	2353 Dec 11 19:52	0° Υ 19'09		minimum elong	2362 Apr 10 23:29	20° Υ 44'50	1°31'20
				max. Earth dist.	2362 Apr 11 22:54	20° Υ 47'03	30.82952 AU
conjunction	2354 Mar 23 21:57	2° Υ 47'30	-1°-13'-54	retrograde	2362 Jul 27 03:31	23° Υ 19'41	
minimum elong	2354 Mar 23 21:57	2° Υ 47'30	1°13'55	opposition	2362 Oct 15 14:58	21° Υ 54'16	-1°-38'-33
max. Earth dist.	2354 Mar 24 19:19	2° Υ 49'31	30.88819 AU	min. Earth dist.	2362 Oct 14 17:16	21° Υ 55'47	28.82903 AU
retrograde	2354 Jul 08 20:07	5° Υ 21'52		direct	2363 Jan 01 04:38	20° Υ 30'58	
opposition	2354 Sep 27 09:56	3° Υ 56'52	-1°-20'-27				
min. Earth dist.	2354 Sep 26 12:52	3° Υ 58'20	28.88541 AU	conjunction	2363 Apr 13 11:59	22° Υ 59'33	-1°-32'-55
direct	2354 Dec 14 08:48	2° Υ 33'49		minimum elong	2363 Apr 13 11:58	22° Υ 59'33	1°32'57
				max. Earth dist.	2363 Apr 14 11:32	23° Υ 01'47	30.82682 AU
conjunction	2355 Mar 26 09:57	5° Υ 02'12	-1°-16'-31	retrograde	2363 Jul 29 18:11	25° Υ 34'27	
minimum elong	2355 Mar 26 09:57	5° Υ 02'12	1°16'32	min. Earth dist.	2363 Oct 17 04:33	24° Υ 10'38	28.82688 AU
max. Earth dist.	2355 Mar 27 07:01	5° Υ 04'12	30.88084 AU	opposition	2363 Oct 18 03:17	24° Υ 09'03	-1°-40'-10
retrograde	2355 Jul 11 10:23	7° Υ 36'41		direct	2364 Jan 03 17:15	22° Υ 45'44	
opposition	2355 Sep 29 22:59	6° Υ 11'38	-1°-23'-11				
min. Earth dist.	2355 Sep 29 02:57	6° Υ 13'01	28.87760 AU	conjunction	2364 Apr 15 00:37	25° Υ 14'24	-1°-34'-22
direct	2355 Dec 16 20:52	4° Υ 48'33		minimum elong	2364 Apr 15 00:37	25° Υ 14'24	1°34'22
				max. Earth dist.	2364 Apr 16 00:05	25° Υ 16'37	30.82502 AU
conjunction	2356 Mar 27 22:12	7° Υ 16'58	-1°-19'00	retrograde	2364 Jul 31 07:36	27° Υ 49'22	
minimum elong	2356 Mar 27 22:12	7° Υ 16'58	1°19'00	opposition	2364 Oct 19 15:37	26° Υ 23'57	-1°-41'-38
max. Earth dist.	2356 Mar 28 19:49	7° Υ 19'01	30.87257 AU	min. Earth dist.	2364 Oct 18 17:55	26° Υ 25'28	28.82551 AU
retrograde	2356 Jul 12 23:42	9° Υ 51'31		direct	2365 Jan 05 04:16	25° Υ 00'39	
opposition	2356 Oct 01 11:37	8° Υ 26'24	-1°-25'-47				
min. Earth dist.	2356 Sep 30 14:36	8° Υ 27'51	28.86889 AU	conjunction	2365 Apr 17 13:28	27° Υ 29'24	-1°-35'-40
direct	2356 Dec 18 10:07	7° Υ 03'17		minimum elong	2365 Apr 17 13:27	27° Υ 29'24	1°35'41
				max. Earth dist.	2365 Apr 18 13:27	27° Υ 31'40	30.82393 AU
conjunction	2357 Mar 30 10:15	9° Υ 31'43	-1°-21'-23		2365 Jul 17 13:06	0° ♄	
minimum elong	2357 Mar 30 10:15	9° Υ 31'43	1°21'24	retrograde	2365 Aug 02 21:53	0° ♄ 04'24	
max. Earth dist.	2357 Mar 31 07:09	9° Υ 33'42	30.86360 AU		2365 Aug 19 09:40	30° ✕ Υ	
retrograde	2357 Jul 15 12:49	12° Υ 06'19		min. Earth dist.	2365 Oct 21 05:18	28° Υ 40'36	28.82445 AU
min. Earth dist.	2357 Oct 03 04:09	10° Υ 42'32	28.85996 AU	opposition	2365 Oct 22 03:52	28° Υ 39'01	-1°-42'-57
opposition	2357 Oct 04 00:27	10° Υ 41'08	-1°-28'-15	direct	2366 Jan 07 17:00	27° Υ 15'43	
direct	2357 Dec 20 21:12	9° Υ 17'58					
				conjunction	2366 Apr 20 02:14	29° Υ 44'31	-1°-36'-49
conjunction	2358 Apr 01 22:22	11° Υ 46'24	-1°-23'-38	minimum elong	2366 Apr 20 02:14	29° Υ 44'31	1°36'49
minimum elong	2358 Apr 01 22:22	11° Υ 46'24	1°23'38	max. Earth dist.	2366 Apr 21 01:14	29° Υ 46'42	30.82274 AU
max. Earth dist.	2358 Apr 02 20:41	11° Υ 48'31	30.85473 AU		2366 Apr 26 22:16	0° ♄	
retrograde	2358 Jul 18 01:25	14° Υ 21'03		retrograde	2366 Aug 05 12:25	2° ♄ 19'34	
opposition	2358 Oct 06 13:06	12° Υ 55'47	-1°-30'-36	opposition	2366 Oct 24 16:19	0° ♄ 54'12	-1°-44'-6
min. Earth dist.	2358 Oct 05 16:01	12° Υ 57'15	28.85134 AU	min. Earth dist.	2366 Oct 23 18:54	0° ♄ 55'41	28.82313 AU
direct	2358 Dec 23 10:07	11° Υ 32'35			2366 Nov 28 18:11	30° ✕ Υ	
				direct	2367 Jan 10 04:24	29° Υ 30'53	
conjunction	2359 Apr 04 10:31	14° Υ 01'01	-1°-25'-45		2367 Feb 20 13:01	0° ♄	
minimum elong	2359 Apr 04 10:30	14° Υ 01'01	1°25'46				
max. Earth dist.	2359 Apr 05 08:06	14° Υ 03'04	30.84651 AU	conjunction	2367 Apr 22 15:31	1° ♄ 59'46	-1°-37'-50
retrograde	2359 Jul 20 14:44	16° Υ 35'43		minimum elong	2367 Apr 22 15:31	1° ♄ 59'46	1°37'51
min. Earth dist.	2359 Oct 08 04:30	15° Υ 11'52	28.84376 AU	max. Earth dist.	2367 Apr 23 15:11	2° ♄ 02'00	30.82102 AU
opposition	2359 Oct 09 01:36	15° Υ 10'24	-1°-32'-48	retrograde	2367 Aug 08 02:15	4° ♄ 34'48	

min. Earth dist.	2367 Oct 26 06:56	3°♄10'56	28.82094 AU	min. Earth dist.	2375 Nov 13 08:27	21°♄10'52	28.81012 AU
opposition	2367 Oct 27 04:28	3°♄09'26	-1°-45'-6	opposition	2375 Nov 14 03:50	21°♄09'30	-1°-47'-15
direct	2368 Jan 12 17:56	1°♄46'06		direct	2376 Jan 30 13:56	19°♄45'51	
conjunction	2368 Apr 24 04:40	4°♄15'01	-1°-38'-41	conjunction	2376 May 12 15:22	22°♄15'12	-1°-40'-6
minimum elong	2368 Apr 24 04:40	4°♄15'01	1°38'41	minimum elong	2376 May 12 15:22	22°♄15'12	1°40'06
max. Earth dist.	2368 Apr 25 02:47	4°♄17'06	30.81844 AU	max. Earth dist.	2376 May 13 13:18	22°♄17'16	30.81076 AU
retrograde	2368 Aug 09 15:41	6°♄50'03		retrograde	2376 Aug 28 00:33	24°♄49'59	
opposition	2368 Oct 28 16:46	5°♄24'39	-1°-45'-56	opposition	2376 Nov 15 15:27	23°♄24'38	-1°-46'-46
min. Earth dist.	2368 Oct 27 19:55	5°♄26'07	28.81801 AU	min. Earth dist.	2376 Nov 14 19:47	23°♄26'01	28.81381 AU
direct	2369 Jan 14 04:59	4°♄01'16		direct	2377 Feb 01 03:28	22°♄01'00	
conjunction	2369 Apr 26 17:52	6°♄30'13	-1°-39'-24	conjunction	2377 May 15 04:47	24°♄30'26	-1°-39'-34
minimum elong	2369 Apr 26 17:52	6°♄30'13	1°39'25	minimum elong	2377 May 15 04:47	24°♄30'26	1°39'36
max. Earth dist.	2369 Apr 27 16:40	6°♄32'22	30.81512 AU	max. Earth dist.	2377 May 16 01:22	24°♄32'22	30.81490 AU
retrograde	2369 Aug 12 03:12	9°♄05'14		retrograde	2377 Aug 30 14:17	27°♄05'13	
min. Earth dist.	2369 Oct 30 08:26	7°♄41'14	28.81447 AU	min. Earth dist.	2377 Nov 17 08:15	25°♄41'16	28.81825 AU
opposition	2369 Oct 31 04:56	7°♄39'48	-1°-46'-37	opposition	2377 Nov 18 03:11	25°♄39'56	-1°-46'-8
direct	2370 Jan 16 17:31	6°♄16'22		direct	2378 Feb 03 14:12	24°♄16'18	
conjunction	2370 Apr 29 07:03	8°♄45'20	-1°-39'-57	conjunction	2378 May 17 18:41	26°♄45'51	-1°-38'-54
minimum elong	2370 Apr 29 07:03	8°♄45'20	1°39'58	minimum elong	2378 May 17 18:41	26°♄45'51	1°38'55
max. Earth dist.	2370 Apr 30 04:43	8°♄47'23	30.81167 AU	max. Earth dist.	2378 May 18 15:49	26°♄47'50	30.81938 AU
retrograde	2370 Aug 14 17:16	11°♄20'18		retrograde	2378 Sep 02 03:17	29°♄20'35	
opposition	2370 Nov 02 16:54	9°♄54'51	-1°-47'-8	opposition	2378 Nov 20 14:44	27°♄55'22	-1°-45'-20
min. Earth dist.	2370 Nov 01 20:14	9°♄56'18	28.81116 AU	min. Earth dist.	2378 Nov 19 20:31	27°♄56'40	28.82259 AU
direct	2371 Jan 19 04:12	8°♄31'21		direct	2379 Feb 06 02:51	26°♄31'45	
conjunction	2371 May 01 20:22	11°♄00'21	-1°-40'-22	conjunction	2379 May 20 08:37	29°♄01'22	-1°-38'-4
minimum elong	2371 May 01 20:22	11°♄00'21	1°40'23	minimum elong	2379 May 20 08:37	29°♄01'22	1°38'06
max. Earth dist.	2371 May 02 18:31	11°♄02'26	30.80849 AU	max. Earth dist.	2379 May 21 03:58	29°♄03'12	30.82355 AU
retrograde	2371 Aug 17 04:28	13°♄35'17		retrograde	2379 Jun 15 23:53	0°♄	
min. Earth dist.	2371 Nov 04 09:07	12°♄11'12	28.80835 AU	retrograde	2379 Sep 04 18:08	1°♄36'04	
opposition	2371 Nov 05 04:53	12°♄09'48	-1°-47'-29	min. Earth dist.	2379 Nov 22 08:28	0°♄12'10	28.82637 AU
direct	2372 Jan 21 15:07	10°♄46'15		opposition	2379 Nov 23 02:22	0°♄10'54	-1°-44'-22
conjunction	2372 May 03 09:40	13°♄15'17	-1°-40'-37	direct	2379 Nov 29 13:33	30°♄	
minimum elong	2372 May 03 09:40	13°♄15'17	1°40'37	direct	2380 Feb 08 13:57	28°♄47'15	
max. Earth dist.	2372 May 04 07:28	13°♄17'21	30.80623 AU	direct	2380 Apr 16 03:58	0°♄	
retrograde	2372 Jun 23 04:23	15°♄		conjunction	2380 May 21 22:40	1°♄16'57	-1°-37'-6
retrograde	2372 Aug 18 17:55	15°♄50'11		minimum elong	2380 May 21 22:40	1°♄16'57	1°37'06
retrograde	2372 Oct 16 02:54	15°♄		max. Earth dist.	2380 May 22 17:52	1°♄18'45	30.82675 AU
opposition	2372 Nov 06 16:35	14°♄24'42	-1°-47'-40	retrograde	2380 Sep 06 04:53	3°♄51'33	
min. Earth dist.	2372 Nov 05 20:04	14°♄26'09	28.80666 AU	opposition	2380 Nov 24 13:57	2°♄26'26	-1°-43'-14
direct	2373 Jan 23 03:27	13°♄01'05		min. Earth dist.	2380 Nov 23 21:30	2°♄27'36	28.82905 AU
direct	2373 Apr 22 12:23	15°♄		direct	2381 Feb 10 01:22	1°♄02'44	
conjunction	2373 May 05 22:56	15°♄30'12	-1°-40'-43	conjunction	2381 May 24 12:40	3°♄32'28	-1°-35'-58
minimum elong	2373 May 05 22:56	15°♄30'12	1°40'44	minimum elong	2381 May 24 12:40	3°♄32'28	1°36'00
max. Earth dist.	2373 May 06 20:35	15°♄32'14	30.80511 AU	max. Earth dist.	2381 May 25 06:40	3°♄34'10	30.82915 AU
retrograde	2373 Aug 21 06:14	18°♄05'04		retrograde	2381 Sep 08 17:46	6°♄06'58	
min. Earth dist.	2373 Nov 08 08:59	16°♄40'57	28.80633 AU	min. Earth dist.	2381 Nov 26 08:49	4°♄43'02	28.83102 AU
opposition	2373 Nov 09 04:28	16°♄39'35	-1°-47'-42	opposition	2381 Nov 27 01:23	4°♄41'52	-1°-41'-57
direct	2374 Jan 25 14:03	15°♄15'57		direct	2382 Feb 12 13:30	3°♄18'06	
conjunction	2374 May 08 12:16	17°♄45'07	-1°-40'-40	conjunction	2382 May 27 02:37	5°♄47'52	-1°-34'-42
minimum elong	2374 May 08 12:16	17°♄45'07	1°40'40	minimum elong	2382 May 27 02:37	5°♄47'52	1°34'43
max. Earth dist.	2374 May 09 10:19	17°♄47'11	30.80561 AU	max. Earth dist.	2382 May 27 19:54	5°♄49'29	30.83080 AU
retrograde	2374 Aug 23 20:15	20°♄19'57		retrograde	2382 Sep 11 05:27	8°♄22'15	
opposition	2374 Nov 11 16:10	18°♄54'30	-1°-47'-33	opposition	2382 Nov 29 12:52	6°♄57'08	-1°-40'-32
min. Earth dist.	2374 Nov 10 19:45	18°♄55'56	28.80750 AU	min. Earth dist.	2382 Nov 28 21:59	6°♄58'12	28.83249 AU
direct	2375 Jan 28 02:36	17°♄30'51		direct	2383 Feb 14 23:45	5°♄33'18	
conjunction	2375 May 11 01:42	20°♄00'06	-1°-40'-27	conjunction	2383 May 29 16:43	8°♄03'06	-1°-33'-18
minimum elong	2375 May 11 01:42	20°♄00'06	1°40'29	minimum elong	2383 May 29 16:43	8°♄03'06	1°33'19
max. Earth dist.	2375 May 11 22:49	20°♄02'05	30.80749 AU	max. Earth dist.	2383 May 30 09:36	8°♄04'41	30.83233 AU
retrograde	2375 Aug 26 10:31	22°♄34'55		retrograde	2383 Sep 13 18:01	10°♄37'20	

opposition	2383 Dec 01 23:56	9°II12'14	-1°-38'-57	conjunction	2392 Jun 18 23:17	28°II15'56	-1°-14'-34
min. Earth dist.	2383 Dec 01 08:42	9°II13'18	28.83399 AU	minimum elong	2392 Jun 18 23:18	28°II15'56	1°14'35
direct	2384 Feb 17 12:44	7°II48'18		max. Earth dist.	2392 Jun 19 10:11	28°II16'57	30.88289 AU
					2392 Aug 08 21:05	0°☾	
conjunction	2384 May 31 06:41	10°II18'08	-1°-31'-45	retrograde	2392 Oct 03 11:51	0°☾49'06	
minimum elong	2384 May 31 06:41	10°II18'08	1°31'45		2392 Nov 29 13:24	30°RII	
max. Earth dist.	2384 May 31 22:15	10°II19'35	30.83404 AU	opposition	2392 Dec 21 02:46	29°II24'32	-1°-18'-17
retrograde	2384 Sep 15 06:32	12°II52'14		min. Earth dist.	2392 Dec 20 17:06	29°II25'14	28.88682 AU
opposition	2384 Dec 03 11:13	11°II27'07	-1°-37'-13	direct	2393 Mar 08 22:51	28°II00'20	
min. Earth dist.	2384 Dec 02 21:18	11°II28'06	28.83609 AU		2393 Jun 07 17:08	0°☾	
direct	2385 Feb 19 00:22	10°II03'07					
				conjunction	2393 Jun 21 13:23	0°☾30'48	-1°-11'-52
conjunction	2385 Jun 02 20:34	12°II32'59	-1°-30'-4	minimum elong	2393 Jun 21 13:23	0°☾30'48	1°11'54
minimum elong	2385 Jun 02 20:34	12°II32'59	1°30'05	max. Earth dist.	2393 Jun 21 22:34	0°☾31'40	30.88943 AU
max. Earth dist.	2385 Jun 03 12:40	12°II34'29	30.83660 AU	retrograde	2393 Oct 05 23:37	3°☾03'51	
retrograde	2385 Sep 17 19:08	15°II06'56		opposition	2393 Dec 23 13:43	1°☾39'20	-1°-15'-21
opposition	2385 Dec 05 22:18	13°II41'51	-1°-35'-20	min. Earth dist.	2393 Dec 23 05:50	1°☾39'54	28.89292 AU
min. Earth dist.	2385 Dec 05 08:13	13°II42'50	28.83907 AU	direct	2394 Mar 11 10:05	0°☾15'05	
direct	2386 Feb 21 14:02	12°II17'46					
				conjunction	2394 Jun 24 03:45	2°☾45'37	-1°-9'-5
conjunction	2386 Jun 05 10:29	14°II47'41	-1°-28'-14	minimum elong	2394 Jun 24 03:45	2°☾45'37	1°09'06
minimum elong	2386 Jun 05 10:29	14°II47'41	1°28'15	max. Earth dist.	2394 Jun 24 12:42	2°☾46'27	30.89520 AU
max. Earth dist.	2386 Jun 06 01:04	14°II49'03	30.84024 AU	retrograde	2394 Oct 08 11:38	5°☾18'29	
retrograde	2386 Sep 20 08:35	17°II21'31		opposition	2394 Dec 26 00:19	3°☾54'01	-1°-12'-18
opposition	2386 Dec 08 09:18	15°II56'27	-1°-33'-19	min. Earth dist.	2394 Dec 25 16:49	3°☾54'33	28.89824 AU
min. Earth dist.	2386 Dec 07 20:00	15°II57'23	28.84340 AU	direct	2395 Mar 13 23:24	2°☾29'41	
direct	2387 Feb 24 00:57	14°II32'19					
				conjunction	2395 Jun 26 17:55	5°☾00'16	-1°-6'-11
conjunction	2387 Jun 08 00:37	17°II02'18	-1°-26'-17	minimum elong	2395 Jun 26 17:55	5°☾00'16	1°06'12
minimum elong	2387 Jun 08 00:37	17°II02'18	1°26'19	max. Earth dist.	2395 Jun 27 00:49	5°☾00'54	30.90039 AU
max. Earth dist.	2387 Jun 08 15:48	17°II03'43	30.84523 AU	retrograde	2395 Oct 11 00:32	7°☾32'58	
retrograde	2387 Sep 22 21:22	19°II36'00		opposition	2395 Dec 28 11:01	6°☾08'32	-1°-9'-9
opposition	2387 Dec 10 20:19	18°II10'59	-1°-31'-9	min. Earth dist.	2395 Dec 28 04:41	6°☾08'58	28.90335 AU
min. Earth dist.	2387 Dec 10 07:27	18°II11'54	28.84898 AU	direct	2396 Mar 15 10:25	4°☾44'07	
direct	2388 Feb 26 14:14	16°II46'50					
				conjunction	2396 Jun 28 08:00	7°☾14'44	-1°-3'-11
conjunction	2388 Jun 09 14:29	19°II16'53	-1°-24'-12	minimum elong	2396 Jun 28 08:00	7°☾14'44	1°03'12
minimum elong	2388 Jun 09 14:29	19°II16'53	1°24'12	max. Earth dist.	2396 Jun 28 15:13	7°☾15'24	30.90549 AU
max. Earth dist.	2388 Jun 10 04:06	19°II18'09	30.85158 AU	retrograde	2396 Oct 12 12:51	9°☾47'16	
retrograde	2388 Sep 24 11:21	21°II50'28		opposition	2396 Dec 29 21:34	8°☾22'50	-1°-5'-54
opposition	2388 Dec 12 07:14	20°II25'32	-1°-28'-50	min. Earth dist.	2396 Dec 29 16:00	8°☾23'14	28.90852 AU
min. Earth dist.	2388 Dec 11 18:24	20°II26'26	28.85594 AU	direct	2397 Mar 18 00:37	6°☾58'22	
direct	2389 Feb 28 01:42	19°II01'22					
				conjunction	2397 Jun 30 21:54	9°☾29'00	-1°00'-6
conjunction	2389 Jun 12 04:35	21°II31'30	-1°-21'-58	minimum elong	2397 Jun 30 21:55	9°☾29'00	1°00'07
minimum elong	2389 Jun 12 04:35	21°II31'30	1°22'00	max. Earth dist.	2397 Jul 01 03:15	9°☾29'30	30.91107 AU
max. Earth dist.	2389 Jun 12 18:27	21°II32'48	30.85907 AU	retrograde	2397 Oct 15 01:45	12°☾01'21	
retrograde	2389 Sep 26 22:31	24°II05'00		opposition	2398 Jan 01 07:56	10°☾36'57	-1°-2'-34
opposition	2389 Dec 14 18:10	22°II40'09	-1°-26'-24	min. Earth dist.	2398 Jan 01 02:35	10°☾37'20	28.91452 AU
min. Earth dist.	2389 Dec 14 06:39	22°II40'58	28.86378 AU	direct	2398 Mar 20 12:53	9°☾12'25	
direct	2390 Mar 02 12:59	21°II16'00					
				conjunction	2398 Jul 03 11:56	11°☾43'05	0°-56'-56
conjunction	2390 Jun 14 18:40	23°II46'13	-1°-19'-37	minimum elong	2398 Jul 03 11:56	11°☾43'05	0°56'56
minimum elong	2390 Jun 14 18:40	23°II46'13	1°19'38	max. Earth dist.	2398 Jul 03 17:28	11°☾43'36	30.91749 AU
max. Earth dist.	2390 Jun 15 07:17	23°II47'24	30.86732 AU	retrograde	2398 Oct 17 12:38	14°☾15'15	
retrograde	2390 Sep 29 11:56	26°II19'37		opposition	2399 Jan 03 18:25	12°☾50'54	0°-59'-8
opposition	2390 Dec 17 05:01	24°II54'53	-1°-23'-49	min. Earth dist.	2399 Jan 03 14:20	12°☾51'11	28.92144 AU
min. Earth dist.	2390 Dec 16 17:28	24°II55'42	28.87201 AU	direct	2399 Mar 23 00:56	11°☾26'18	
direct	2391 Mar 05 00:33	23°II30'43					
				conjunction	2399 Jul 06 01:50	13°☾57'00	0°-53'-41
conjunction	2391 Jun 17 08:58	26°II01'03	-1°-17'-9	minimum elong	2399 Jul 06 01:50	13°☾57'00	0°53'41
minimum elong	2391 Jun 17 08:58	26°II01'03	1°17'10	max. Earth dist.	2399 Jul 06 06:04	13°☾57'24	30.92516 AU
max. Earth dist.	2391 Jun 17 20:47	26°II02'09	30.87536 AU	retrograde	2399 Oct 20 01:45	16°☾28'59	
retrograde	2391 Oct 01 23:39	28°II34'20		opposition	2400 Jan 06 04:40	15°☾04'41	0°-55'-36
opposition	2391 Dec 19 15:55	27°II09'42	-1°-21'-7	min. Earth dist.	2400 Jan 06 00:15	15°☾05'00	28.92976 AU
min. Earth dist.	2391 Dec 19 06:20	27°II10'22	28.87982 AU	direct	2400 Mar 24 12:58	13°☾40'03	
direct	2392 Mar 06 10:10	25°II45'31					

conjunction	2400 Jul 07 15:43	16°☾10'48	0°-50'-21	conjunction	2408 Jul 26 06:45	4°♊00'12	0°-21'-25
minimum elong	2400 Jul 07 15:43	16°☾10'48	0°50'22	minimum elong	2408 Jul 26 06:45	4°♊00'12	0°21'26
max. Earth dist.	2400 Jul 07 19:42	16°☾11'10	30.93418 AU	max. Earth dist.	2408 Jul 26 02:19	3°♊59'48	31.01712 AU
retrograde	2400 Oct 21 12:40	18°☾42'37		retrograde	2408 Nov 08 10:06	6°♊30'43	
opposition	2401 Jan 07 15:08	17°☾18'24	0°-52'00	opposition	2409 Jan 25 01:25	5°♊07'07	0°-20'-51
min. Earth dist.	2401 Jan 07 12:11	17°☾18'37	28.93954 AU	min. Earth dist.	2409 Jan 25 04:39	5°♊06'53	29.02122 AU
direct	2401 Mar 26 22:49	15°☾53'45		direct	2409 Apr 13 23:07	3°♊42'15	
conjunction	2401 Jul 10 05:29	18°☾24'32	0°-46'-56	conjunction	2409 Jul 28 20:19	6°♊13'24	0°-17'-37
minimum elong	2401 Jul 10 05:29	18°☾24'32	0°46'57	minimum elong	2409 Jul 28 20:19	6°♊13'24	0°17'38
max. Earth dist.	2401 Jul 10 08:56	18°☾24'51	30.94476 AU	max. Earth dist.	2409 Jul 28 15:28	6°♊12'57	31.02525 AU
retrograde	2401 Oct 23 23:43	20°☾56'12		retrograde	2409 Nov 10 20:25	8°♊43'43	
opposition	2402 Jan 10 01:25	19°☾32'05	0°-48'-19	opposition	2410 Jan 27 11:39	7°♊20'10	0°-16'-47
min. Earth dist.	2402 Jan 09 22:06	19°☾32'19	28.95055 AU	min. Earth dist.	2410 Jan 27 16:39	7°♊19'49	29.02947 AU
direct	2402 Mar 29 11:19	18°☾07'25		direct	2410 Apr 16 09:52	5°♊55'15	
conjunction	2402 Jul 12 19:24	20°☾38'17	0°-43'-27	conjunction	2410 Jul 31 09:53	8°♊26'24	0°-13'-48
minimum elong	2402 Jul 12 19:24	20°☾38'17	0°43'28	minimum elong	2410 Jul 31 09:53	8°♊26'24	0°13'49
max. Earth dist.	2402 Jul 12 21:33	20°☾38'29	30.95622 AU	behind sun begin	2410 Jul 31 06:36	8°♊26'06	
retrograde	2402 Oct 26 10:39	23°☾09'48		behind sun end	2410 Jul 31 13:09	8°♊26'41	
opposition	2403 Jan 12 11:42	21°☾45'48	0°-44'-33	max. Earth dist.	2410 Jul 31 04:13	8°♊25'53	31.03376 AU
min. Earth dist.	2403 Jan 12 10:00	21°☾45'55	28.96233 AU	retrograde	2410 Nov 13 06:54	10°♊56'31	
direct	2403 Mar 31 21:12	20°☾21'07		opposition	2411 Jan 29 21:35	9°♊33'02	0°-12'-41
conjunction	2403 Jul 15 09:28	22°☾52'04	0°-39'-54	min. Earth dist.	2411 Jan 30 02:18	9°♊32'42	29.03822 AU
minimum elong	2403 Jul 15 09:28	22°☾52'04	0°39'55	direct	2411 Apr 18 22:40	8°♊08'04	
max. Earth dist.	2403 Jul 15 11:25	22°☾52'15	30.96812 AU	conjunction	2411 Aug 02 23:18	10°♊39'15	0°-9'-59
retrograde	2403 Oct 28 22:08	25°☾23'26		minimum elong	2411 Aug 02 23:18	10°♊39'15	0°10'00
opposition	2404 Jan 14 22:01	23°☾59'32	0°-40'-44	behind sun begin	2411 Aug 02 18:01	10°♊38'47	
min. Earth dist.	2404 Jan 14 20:43	23°☾59'38	28.97402 AU	behind sun end	2411 Aug 03 04:35	10°♊39'43	
direct	2404 Apr 02 09:19	22°☾34'52		max. Earth dist.	2411 Aug 02 16:34	10°♊38'39	31.04290 AU
conjunction	2404 Jul 16 23:14	25°☾05'51	0°-36'-18	retrograde	2411 Nov 15 17:09	13°♊09'13	
minimum elong	2404 Jul 16 23:14	25°☾05'51	0°36'19	opposition	2412 Feb 01 07:48	11°♊45'47	0°-8'-35
max. Earth dist.	2404 Jul 16 23:09	25°☾05'51	30.97958 AU	min. Earth dist.	2412 Feb 01 13:45	11°♊45'22	29.04799 AU
retrograde	2404 Oct 30 10:12	27°☾37'05		direct	2412 Apr 20 08:23	10°♊20'48	
opposition	2405 Jan 16 08:26	26°☾13'16	0°-36'-50	conjunction	2412 Aug 04 12:30	12°♊51'59	0°-6'-9
min. Earth dist.	2405 Jan 16 08:21	26°☾13'16	28.98521 AU	minimum elong	2412 Aug 04 12:30	12°♊51'59	0°06'10
direct	2405 Apr 04 20:08	24°☾48'34		behind sun begin	2412 Aug 04 06:16	12°♊51'26	
conjunction	2405 Jul 19 13:17	27°☾19'37	0°-32'-38	behind sun end	2412 Aug 04 18:45	12°♊52'32	
minimum elong	2405 Jul 19 13:17	27°☾19'37	0°32'39	max. Earth dist.	2412 Aug 04 05:56	12°♊51'24	31.05325 AU
max. Earth dist.	2405 Jul 19 13:09	27°☾19'36	30.99028 AU		2412 Oct 12 01:28	15°♊	
retrograde	2405 Nov 01 21:34	29°☾50'41		retrograde	2412 Nov 17 03:26	15°♊21'48	
opposition	2406 Jan 18 18:44	28°☾26'56	0°-32'-54		2412 Dec 23 18:30	15°♊	
min. Earth dist.	2406 Jan 18 19:49	28°☾26'52	28.99535 AU	opposition	2413 Feb 02 17:52	13°♊58'27	0°-4'-27
direct	2406 Apr 07 09:44	27°☾02'13		min. Earth dist.	2413 Feb 02 23:46	13°♊58'02	29.05888 AU
conjunction	2406 Jul 22 03:09	29°☾33'18	0°-28'-56	direct	2413 Apr 22 19:53	12°♊33'27	
minimum elong	2406 Jul 22 03:09	29°☾33'18	0°28'57		2413 Aug 04 23:10	15°♊	
max. Earth dist.	2406 Jul 22 00:39	29°☾33'04	31.00002 AU	conjunction	2413 Aug 07 01:43	15°♊04'41	0°-2'-17
	2406 Aug 03 04:09	0°♊		minimum elong	2413 Aug 07 01:42	15°♊04'41	0°02'18
retrograde	2406 Nov 04 10:17	2°♊04'11		behind sun begin	2413 Aug 06 19:06	15°♊04'06	
opposition	2407 Jan 21 05:01	0°♊40'30	0°-28'-55	behind sun end	2413 Aug 07 08:18	15°♊05'16	
min. Earth dist.	2407 Jan 21 06:37	0°♊40'23	29.00461 AU	max. Earth dist.	2413 Aug 06 17:37	15°♊03'57	31.06480 AU
	2407 Feb 15 02:14	30°♊		retrograde	2413 Nov 19 14:25	17°♊34'22	
direct	2407 Apr 09 22:00	29°☾15'43		opposition	2414 Feb 05 03:53	16°♊11'06	0°00'-20
	2407 Jun 01 13:40	0°♊		min. Earth dist.	2414 Feb 05 10:31	16°♊10'38	29.07108 AU
conjunction	2407 Jul 24 17:04	1°♊46'50	0°-25'-11	asc. node	2414 Mar 07 16:48	15°♊22'35	
minimum elong	2407 Jul 24 17:05	1°♊46'50	0°25'12		2414 Mar 27 00:44	15°♊	
max. Earth dist.	2407 Jul 24 14:22	1°♊46'35	31.00879 AU	direct	2414 Apr 25 06:12	14°♊46'07	
retrograde	2407 Nov 06 21:06	4°♊17'32			2414 May 24 09:41	15°♊	
opposition	2408 Jan 23 15:18	2°♊53'54	0°-24'-54	conjunction	2414 Aug 09 15:04	17°♊17'24	0°01'41
min. Earth dist.	2408 Jan 23 18:35	2°♊53'40	29.01303 AU	minimum elong	2414 Aug 09 15:04	17°♊17'24	0°01'41
direct	2408 Apr 11 10:24	1°♊29'05		behind sun begin	2414 Aug 09 08:29	17°♊16'49	
				behind sun end	2414 Aug 09 21:40	17°♊17'59	
				max. Earth dist.	2414 Aug 09 07:27	17°♊16'43	31.07744 AU

retrograde	2414 Nov 22 00:55	19°04'57"		min. Earth dist.	2422 Feb 23 02:20	3°05'10"	29.15532 AU
opposition	2415 Feb 07 13:59	18°02'34"	0°03'47"	direct	2422 May 13 07:24	2°07'26"	
min. Earth dist.	2415 Feb 07 21:29	18°02'31"	29.08395 AU				
direct	2415 Apr 27 19:04	16°02'58"		conjunction	2422 Aug 27 23:25	4°07'58"	0°31'56"
				minimum elong	2422 Aug 27 23:25	4°07'58"	0°31'55"
conjunction	2415 Aug 12 04:11	19°02'30"	0°05'34"	max. Earth dist.	2422 Aug 27 07:15	4°07'56"	31.15874 AU
minimum elong	2415 Aug 12 04:10	19°02'30"	0°05'34"	retrograde	2422 Dec 09 15:47	7°07'26"	
behind sun begin	2415 Aug 11 21:50	19°02'29"		opposition	2423 Feb 24 23:15	6°07'03"	0°36'00"
behind sun end	2415 Aug 12 10:30	19°02'30"		min. Earth dist.	2423 Feb 25 13:12	6°07'02"	29.16259 AU
max. Earth dist.	2415 Aug 11 18:40	19°02'29"	31.09051 AU	direct	2423 May 15 18:14	4°07'38"	
retrograde	2415 Nov 24 13:11	21°02'59"					
opposition	2416 Feb 10 00:03	20°02'36"	0°07'55"	conjunction	2423 Aug 30 11:58	7°07'10"	0°35'32"
min. Earth dist.	2416 Feb 10 07:46	20°02'36"	29.09705 AU	minimum elong	2423 Aug 30 11:58	7°07'10"	0°35'33"
direct	2416 Apr 29 06:21	19°02'11"		max. Earth dist.	2423 Aug 29 20:26	7°07'08"	31.16604 AU
				retrograde	2423 Dec 12 00:32	9°07'38"	
conjunction	2416 Aug 13 17:29	21°02'43"	0°09'24"	opposition	2424 Feb 27 09:25	8°07'15"	0°39'50"
minimum elong	2416 Aug 13 17:29	21°02'43"	0°09'24"	min. Earth dist.	2424 Feb 28 00:02	8°07'14"	29.17013 AU
behind sun begin	2416 Aug 13 12:00	21°02'42"		direct	2424 May 17 06:31	6°07'50"	
behind sun end	2416 Aug 13 22:57	21°02'43"		max. Earth dist.	2424 Aug 31 07:15	9°07'20"	31.17399 AU
max. Earth dist.	2416 Aug 13 08:01	21°02'42"	31.10334 AU				
retrograde	2416 Nov 26 00:09	24°02'12"		conjunction	2424 Sep 01 00:17	9°07'21"	0°39'06"
opposition	2417 Feb 11 10:16	22°02'49"	0°12'01"	minimum elong	2424 Sep 01 00:17	9°07'21"	0°39'05"
min. Earth dist.	2417 Feb 11 19:40	22°02'48"	29.10956 AU	retrograde	2424 Dec 13 11:52	11°07'49"	
direct	2417 May 01 18:29	21°02'24"		opposition	2425 Feb 28 19:25	10°07'27"	0°43'36"
				min. Earth dist.	2425 Mar 01 09:43	10°07'26"	29.17868 AU
conjunction	2417 Aug 16 06:36	23°02'55"	0°13'13"	direct	2425 May 19 17:19	9°07'01"	
minimum elong	2417 Aug 16 06:35	23°02'55"	0°13'14"				
behind sun begin	2417 Aug 16 02:52	23°02'55"		conjunction	2425 Sep 03 12:41	11°07'33"	0°42'35"
behind sun end	2417 Aug 16 10:19	23°02'56"		minimum elong	2425 Sep 03 12:41	11°07'33"	0°42'36"
max. Earth dist.	2417 Aug 15 19:17	23°02'54"	31.11541 AU	max. Earth dist.	2425 Sep 02 20:16	11°07'31"	31.18297 AU
retrograde	2417 Nov 28 13:21	26°02'25"		retrograde	2425 Dec 15 21:40	14°07'01"	
opposition	2418 Feb 13 20:26	25°02'02"	0°16'07"	opposition	2426 Mar 03 05:39	12°07'38"	0°47'19"
min. Earth dist.	2418 Feb 14 05:53	25°02'01"	29.12103 AU	min. Earth dist.	2426 Mar 03 21:04	12°07'37"	29.18819 AU
direct	2418 May 04 07:59	23°02'37"		direct	2426 May 22 05:28	11°07'13"	
				max. Earth dist.	2426 Sep 05 07:20	13°07'42"	31.19303 AU
conjunction	2418 Aug 18 19:53	26°02'08"	0°17'02"				
minimum elong	2418 Aug 18 19:53	26°02'08"	0°17'01"	conjunction	2426 Sep 06 00:55	13°07'44"	0°46'01"
max. Earth dist.	2418 Aug 18 07:56	26°02'07"	31.12611 AU	minimum elong	2426 Sep 06 00:55	13°07'44"	0°46'01"
retrograde	2418 Nov 30 23:30	28°02'37"		retrograde	2426 Dec 18 09:58	16°07'12"	
opposition	2419 Feb 16 06:41	27°02'14"	0°20'10"	opposition	2427 Mar 05 15:41	14°07'49"	0°50'57"
min. Earth dist.	2419 Feb 16 18:08	27°02'14"	29.13116 AU	min. Earth dist.	2427 Mar 06 06:32	14°07'48"	29.19865 AU
direct	2419 May 06 19:38	25°02'50"		direct	2427 May 24 18:26	13°07'24"	
conjunction	2419 Aug 21 09:00	28°02'21"	0°20'49"	conjunction	2427 Sep 08 13:11	15°07'56"	0°49'23"
minimum elong	2419 Aug 21 09:00	28°02'21"	0°20'49"	minimum elong	2427 Sep 08 13:11	15°07'56"	0°49'24"
max. Earth dist.	2419 Aug 20 19:56	28°02'20"	31.13565 AU	max. Earth dist.	2427 Sep 07 19:43	15°07'54"	31.20372 AU
	2419 Oct 08 14:49	0°07'50"		retrograde	2427 Dec 20 20:07	18°07'23"	
retrograde	2419 Dec 03 10:19	0°07'50"		opposition	2428 Mar 07 02:00	17°07'01"	0°54'30"
	2420 Jan 29 20:44	30°07'02"		min. Earth dist.	2428 Mar 07 18:18	17°07'00"	29.20958 AU
opposition	2420 Feb 18 16:53	29°02'27"	0°24'12"	direct	2428 May 26 05:36	15°07'36"	
min. Earth dist.	2420 Feb 19 04:15	29°02'26"	29.14005 AU	max. Earth dist.	2428 Sep 09 07:11	18°07'05"	31.21463 AU
direct	2420 May 08 08:42	28°02'02"					
	2420 Aug 07 11:59	0°07'50"		conjunction	2428 Sep 10 01:11	18°07'07"	0°52'41"
conjunction	2420 Aug 22 21:49	0°07'33"	0°24'33"	minimum elong	2428 Sep 10 01:11	18°07'07"	0°52'41"
minimum elong	2420 Aug 22 21:49	0°07'33"	0°24'33"	retrograde	2428 Dec 22 07:00	20°07'35"	
max. Earth dist.	2420 Aug 22 07:30	0°07'32"	31.14397 AU	opposition	2429 Mar 09 12:12	19°07'12"	0°57'59"
retrograde	2420 Dec 04 20:44	3°07'02"		min. Earth dist.	2429 Mar 10 04:12	19°07'11"	29.22023 AU
opposition	2421 Feb 20 03:07	1°07'39"	0°28'11"	direct	2429 May 28 18:19	17°07'47"	
min. Earth dist.	2421 Feb 20 16:00	1°07'38"	29.14803 AU				
direct	2421 May 10 19:10	0°07'14"		conjunction	2429 Sep 12 13:20	20°07'19"	0°55'54"
				minimum elong	2429 Sep 12 13:19	20°07'19"	0°55'54"
conjunction	2421 Aug 25 10:43	2°07'46"	0°28'16"	max. Earth dist.	2429 Sep 11 18:19	20°07'17"	31.22483 AU
minimum elong	2421 Aug 25 10:43	2°07'46"	0°28'16"	retrograde	2429 Dec 24 17:49	22°07'46"	
max. Earth dist.	2421 Aug 24 20:11	2°07'44"	31.15159 AU	opposition	2430 Mar 11 22:27	21°07'24"	1°01'22"
retrograde	2421 Dec 07 06:02	5°07'14"		min. Earth dist.	2430 Mar 12 15:48	21°07'23"	29.23011 AU
opposition	2422 Feb 22 13:07	3°07'52"	0°32'07"	direct	2430 May 31 04:39	19°07'59"	
				max. Earth dist.	2430 Sep 14 06:21	22°07'29"	31.23409 AU

conjunction	2430 Sep 15 01:30	22° \mathring{M} 30'49	0°59'02	minimum elong	2438 Oct 02 21:55	9° \mathring{A} 59'54	1°20'35
minimum elong	2430 Sep 15 01:29	22° \mathring{M} 30'49	0°59'01	max. Earth dist.	2438 Oct 01 23:37	9° \mathring{A} 57'50	31.28090 AU
retrograde	2430 Dec 27 03:11	24° \mathring{M} 58'16		retrograde	2439 Jan 13 11:41	12° \mathring{A} 26'35	
opposition	2431 Mar 14 08:53	23° \mathring{M} 36'05	1°04'40	opposition	2439 Mar 31 20:16	11° \mathring{A} 04'30	1°27'16
min. Earth dist.	2431 Mar 15 02:33	23° \mathring{M} 34'51	29.23869 AU	min. Earth dist.	2439 Apr 01 16:31	11° \mathring{A} 03'06	29.28555 AU
direct	2431 Jun 02 16:54	22° \mathring{M} 11'04		direct	2439 Jun 20 15:12	9° \mathring{A} 39'26	
				max. Earth dist.	2439 Oct 04 11:22	12° \mathring{A} 08'29	31.28865 AU
conjunction	2431 Sep 17 13:21	24° \mathring{M} 42'27	1°02'05				
minimum elong	2431 Sep 17 13:21	24° \mathring{M} 42'27	1°02'05	conjunction	2439 Oct 05 08:55	12° \mathring{A} 10'29	1°22'49
max. Earth dist.	2431 Sep 16 16:37	24° \mathring{M} 40'32	31.24198 AU	minimum elong	2439 Oct 05 08:55	12° \mathring{A} 10'29	1°22'49
retrograde	2431 Dec 29 12:51	27° \mathring{M} 09'49		retrograde	2440 Jan 15 20:29	14° \mathring{A} 37'07	
opposition	2432 Mar 15 19:19	25° \mathring{M} 47'40	1°07'53	opposition	2440 Apr 02 06:51	13° \mathring{A} 15'05	1°29'34
min. Earth dist.	2432 Mar 16 13:38	25° \mathring{M} 46'24	29.24608 AU	min. Earth dist.	2440 Apr 03 02:51	13° \mathring{A} 13'42	29.29351 AU
direct	2432 Jun 04 03:30	24° \mathring{M} 22'40		direct	2440 Jun 22 03:49	11° \mathring{A} 50'04	
max. Earth dist.	2432 Sep 18 05:05	26° \mathring{M} 52'08	31.24867 AU				
conjunction	2432 Sep 19 01:20	26° \mathring{M} 54'01	1°05'02	conjunction	2440 Oct 06 19:53	14° \mathring{A} 21'06	1°24'54
minimum elong	2432 Sep 19 01:20	26° \mathring{M} 54'01	1°05'01	minimum elong	2440 Oct 06 19:53	14° \mathring{A} 21'06	1°24'54
retrograde	2432 Dec 30 21:13	29° \mathring{M} 21'16		max. Earth dist.	2440 Oct 05 21:23	14° \mathring{A} 19'00	31.29678 AU
opposition	2433 Mar 18 05:41	27° \mathring{M} 59'09	1°10'59	retrograde	2441 Jan 17 06:23	16° \mathring{A} 47'41	
min. Earth dist.	2433 Mar 19 00:57	27° \mathring{M} 57'49	29.25219 AU	opposition	2441 Apr 04 17:20	15° \mathring{A} 25'44	1°31'44
direct	2433 Jun 06 15:08	26° \mathring{M} 34'08		min. Earth dist.	2441 Apr 05 13:30	15° \mathring{A} 24'20	29.30175 AU
				direct	2441 Jun 24 13:54	14° \mathring{A} 00'46	
				max. Earth dist.	2441 Oct 08 09:25	16° \mathring{A} 29'46	31.30475 AU
conjunction	2433 Sep 21 13:04	29° \mathring{M} 05'27	1°07'53				
minimum elong	2433 Sep 21 13:04	29° \mathring{M} 05'27	1°07'54	conjunction	2441 Oct 09 07:01	16° \mathring{A} 31'46	1°26'52
max. Earth dist.	2433 Sep 20 15:07	29° \mathring{M} 03'25	31.25429 AU	minimum elong	2441 Oct 09 07:01	16° \mathring{A} 31'46	1°26'53
	2433 Oct 16 14:27	0° \mathring{A}		retrograde	2442 Jan 19 14:50	18° \mathring{A} 58'20	
retrograde	2434 Jan 02 08:15	1° \mathring{A} 32'36		opposition	2442 Apr 07 04:08	17° \mathring{A} 36'26	1°33'46
opposition	2434 Mar 20 16:02	0° \mathring{A} 10'29	1°13'59	min. Earth dist.	2442 Apr 08 01:01	17° \mathring{A} 35'00	29.30936 AU
min. Earth dist.	2434 Mar 21 11:08	0° \mathring{A} 09'10	29.25741 AU	direct	2442 Jun 27 01:15	16° \mathring{A} 11'31	
	2434 Mar 26 23:31	30° \mathring{R} \mathring{M}					
direct	2434 Jun 09 01:33	28° \mathring{M} 45'26		conjunction	2442 Oct 11 17:54	18° \mathring{A} 42'30	1°28'42
	2434 Aug 18 20:48	0° \mathring{A}		minimum elong	2442 Oct 11 17:53	18° \mathring{A} 42'30	1°28'42
max. Earth dist.	2434 Sep 23 03:23	1° \mathring{A} 14'43	31.25906 AU	max. Earth dist.	2442 Oct 10 18:59	18° \mathring{A} 40'22	31.31190 AU
				retrograde	2443 Jan 22 01:56	21° \mathring{A} 09'03	
conjunction	2434 Sep 24 00:49	1° \mathring{A} 16'43	1°10'39	opposition	2443 Apr 09 14:55	19° \mathring{A} 47'11	1°35'40
minimum elong	2434 Sep 24 00:48	1° \mathring{A} 16'42	1°10'39	min. Earth dist.	2443 Apr 10 11:19	19° \mathring{A} 45'47	29.31605 AU
retrograde	2435 Jan 04 17:15	3° \mathring{A} 43'45		direct	2443 Jun 29 11:34	18° \mathring{A} 22'18	
opposition	2435 Mar 23 02:30	2° \mathring{A} 21'38	1°16'52	max. Earth dist.	2443 Oct 13 06:39	20° \mathring{A} 51'11	31.31789 AU
min. Earth dist.	2435 Mar 23 22:52	2° \mathring{A} 20'13	29.26202 AU				
direct	2435 Jun 11 14:09	0° \mathring{A} 56'34		conjunction	2443 Oct 14 04:56	20° \mathring{A} 53'16	1°30'25
				minimum elong	2443 Oct 14 04:56	20° \mathring{A} 53'16	1°30'26
conjunction	2435 Sep 26 12:14	3° \mathring{A} 27'46	1°13'18	retrograde	2444 Jan 24 10:56	23° \mathring{A} 19'47	
minimum elong	2435 Sep 26 12:14	3° \mathring{A} 27'46	1°13'19	opposition	2444 Apr 11 01:55	21° \mathring{A} 57'57	1°37'26
max. Earth dist.	2435 Sep 25 13:49	3° \mathring{A} 25'41	31.26365 AU	min. Earth dist.	2444 Apr 11 23:31	21° \mathring{A} 56'28	29.32146 AU
retrograde	2436 Jan 07 04:44	5° \mathring{A} 54'42		direct	2444 Jun 30 23:17	20° \mathring{A} 33'06	
opposition	2436 Mar 24 12:52	4° \mathring{A} 32'34	1°19'39				
min. Earth dist.	2436 Mar 25 08:26	4° \mathring{A} 31'13	29.26673 AU	conjunction	2444 Oct 15 15:39	23° \mathring{A} 04'01	1°32'00
direct	2436 Jun 13 03:20	3° \mathring{A} 07'28		minimum elong	2444 Oct 15 15:39	23° \mathring{A} 04'01	1°32'00
				max. Earth dist.	2444 Oct 14 16:22	23° \mathring{A} 01'51	31.32264 AU
conjunction	2436 Sep 27 23:30	5° \mathring{A} 38'37	1°15'51	retrograde	2445 Jan 25 22:14	25° \mathring{A} 30'30	
minimum elong	2436 Sep 27 23:29	5° \mathring{A} 38'37	1°15'50	opposition	2445 Apr 13 12:45	24° \mathring{A} 08'40	1°39'03
max. Earth dist.	2436 Sep 27 01:31	5° \mathring{A} 36'35	31.26847 AU	min. Earth dist.	2445 Apr 14 09:40	24° \mathring{A} 07'14	29.32547 AU
retrograde	2437 Jan 08 14:11	8° \mathring{A} 05'28		direct	2445 Jul 03 11:40	22° \mathring{A} 43'51	
opposition	2437 Mar 26 23:23	6° \mathring{A} 43'19	1°22'19	max. Earth dist.	2445 Oct 17 03:20	25° \mathring{A} 12'33	31.32588 AU
min. Earth dist.	2437 Mar 27 20:00	6° \mathring{A} 41'54	29.27201 AU				
direct	2437 Jun 15 14:39	5° \mathring{A} 18'13		conjunction	2445 Oct 18 02:31	25° \mathring{A} 14'43	1°33'27
				minimum elong	2445 Oct 18 02:31	25° \mathring{A} 14'43	1°33'28
conjunction	2437 Sep 30 10:44	7° \mathring{A} 49'19	1°18'17	retrograde	2446 Jan 28 08:03	27° \mathring{A} 41'10	
minimum elong	2437 Sep 30 10:44	7° \mathring{A} 49'19	1°18'17	opposition	2446 Apr 15 23:44	26° \mathring{A} 19'21	1°40'32
max. Earth dist.	2437 Sep 29 12:43	7° \mathring{A} 47'16	31.27420 AU	min. Earth dist.	2446 Apr 16 21:55	26° \mathring{A} 17'49	29.32817 AU
retrograde	2438 Jan 11 00:38	10° \mathring{A} 16'03		direct	2446 Jul 05 22:43	24° \mathring{A} 54'32	
opposition	2438 Mar 29 09:41	8° \mathring{A} 53'56	1°24'51				
min. Earth dist.	2438 Mar 30 05:24	8° \mathring{A} 52'34	29.27821 AU	conjunction	2446 Oct 20 13:12	27° \mathring{A} 25'20	1°34'47
direct	2438 Jun 18 03:57	7° \mathring{A} 28'50		minimum elong	2446 Oct 20 13:12	27° \mathring{A} 25'20	1°34'46
				max. Earth dist.	2446 Oct 19 13:59	27° \mathring{A} 23'10	31.32806 AU
conjunction	2438 Oct 02 21:55	9° \mathring{A} 59'54	1°20'36	retrograde	2447 Jan 30 18:34	29° \mathring{A} 51'45	

opposition	2447 Apr 18 10:43	28° 2 29'55	1°41'52	max. Earth dist.	2454 Nov 06 01:58	14° 1 46'25	31.34704 AU
min. Earth dist.	2447 Apr 19 08:08	28° 2 28'27	29.32981 AU		2454 Nov 12 03:18	15° 1	
direct	2447 Jul 08 12:26	27° 2 05'06		retrograde	2455 Feb 17 01:25	17° 1 14'54	
				opposition	2455 May 06 04:22	15° 1 53'08	1°47'13
conjunction	2447 Oct 22 23:35	29° 2 35'50	1°35'58	min. Earth dist.	2455 May 07 00:44	15° 1 51'45	29.34932 AU
minimum elong	2447 Oct 22 23:35	29° 2 35'50	1°35'58		2455 Jun 10 08:29	15° 1	
max. Earth dist.	2447 Oct 22 00:01	29° 2 33'38	31.32933 AU	direct	2455 Jul 26 05:47	14° 1 28'40	
	2447 Nov 02 19:57	0° 1			2455 Sep 08 23:28	15° 1	
retrograde	2448 Feb 02 05:41	2° 1 02'13					
opposition	2448 Apr 19 21:48	0° 1 40'22	1°43'04	conjunction	2455 Nov 09 08:52	16° 1 59'02	1°40'23
min. Earth dist.	2448 Apr 20 19:41	0° 1 38'51	29.33100 AU	minimum elong	2455 Nov 09 08:52	16° 1 59'02	1°40'23
	2448 May 15 11:36	30° 1		max. Earth dist.	2455 Nov 08 12:15	16° 1 57'06	31.34899 AU
direct	2448 Jul 10 00:16	29° 2 15'33		retrograde	2456 Feb 19 12:31	19° 1 25'36	
	2448 Sep 01 14:21	0° 1		opposition	2456 May 07 15:54	18° 1 03'51	1°47'12
max. Earth dist.	2448 Oct 23 11:24	1° 1 44'06	31.33045 AU	min. Earth dist.	2456 May 08 11:24	18° 1 02'31	29.35051 AU
				direct	2456 Jul 27 19:38	16° 1 39'25	
conjunction	2448 Oct 24 10:02	1° 1 46'13	1°37'00				
minimum elong	2448 Oct 24 10:01	1° 1 46'13	1°37'00	conjunction	2456 Nov 10 18:56	19° 1 09'44	1°40'18
retrograde	2449 Feb 03 14:11	4° 1 12'34		minimum elong	2456 Nov 10 18:56	19° 1 09'44	1°40'17
opposition	2449 Apr 22 08:43	2° 1 50'41	1°44'06	max. Earth dist.	2456 Nov 09 21:48	19° 1 07'46	31.34943 AU
min. Earth dist.	2449 Apr 23 06:13	2° 1 49'13	29.33214 AU	retrograde	2457 Feb 21 00:34	21° 1 36'19	
direct	2449 Jul 12 13:26	1° 1 25'53		opposition	2457 May 10 03:26	20° 1 14'33	1°47'01
				min. Earth dist.	2457 May 10 23:25	20° 1 13'12	29.35029 AU
conjunction	2449 Oct 26 20:17	3° 1 56'29	1°37'55	direct	2457 Jul 30 07:19	18° 1 50'09	
minimum elong	2449 Oct 26 20:17	3° 1 56'29	1°37'56	max. Earth dist.	2457 Nov 12 08:46	21° 1 18'31	31.34841 AU
max. Earth dist.	2449 Oct 25 21:00	3° 1 54'19	31.33182 AU				
retrograde	2450 Feb 05 23:57	6° 1 22'50		conjunction	2457 Nov 13 05:04	21° 1 20'25	1°40'04
opposition	2450 Apr 24 19:49	5° 1 00'57	1°45'00	minimum elong	2457 Nov 13 05:04	21° 1 20'25	1°40'04
min. Earth dist.	2450 Apr 25 16:51	4° 1 59'30	29.33396 AU	retrograde	2458 Feb 23 09:33	23° 1 47'01	
direct	2450 Jul 15 00:06	3° 1 36'10		opposition	2458 May 12 15:11	22° 1 25'14	1°46'42
max. Earth dist.	2450 Oct 28 08:50	6° 1 04'42	31.33398 AU	min. Earth dist.	2458 May 13 10:55	22° 1 23'53	29.34837 AU
				direct	2458 Aug 01 20:40	21° 1 00'50	
conjunction	2450 Oct 29 06:32	6° 1 06'43	1°38'41				
minimum elong	2450 Oct 29 06:32	6° 1 06'43	1°38'41	conjunction	2458 Nov 15 14:52	23° 1 31'01	1°39'41
retrograde	2451 Feb 08 08:05	8° 1 33'04		minimum elong	2458 Nov 15 14:52	23° 1 31'01	1°39'41
opposition	2451 Apr 27 07:05	7° 1 11'12	1°45'45	max. Earth dist.	2458 Nov 14 17:45	23° 1 29'02	31.34582 AU
min. Earth dist.	2451 Apr 28 04:09	7° 1 09'45	29.33652 AU	retrograde	2459 Feb 25 20:11	25° 1 57'38	
direct	2451 Jul 17 11:39	5° 1 46'28		opposition	2459 May 15 02:55	24° 1 35'48	1°46'14
				min. Earth dist.	2459 May 15 22:18	24° 1 34'29	29.34518 AU
conjunction	2451 Oct 31 16:37	8° 1 16'58	1°39'19	direct	2459 Aug 04 08:20	23° 1 11'23	
minimum elong	2451 Oct 31 16:37	8° 1 16'58	1°39'20	max. Earth dist.	2459 Nov 17 05:04	25° 1 39'38	31.34204 AU
max. Earth dist.	2451 Oct 30 18:20	8° 1 14'54	31.33704 AU				
retrograde	2452 Feb 10 19:07	10° 1 43'21		conjunction	2459 Nov 18 00:47	25° 1 41'29	1°39'10
opposition	2452 Apr 28 18:10	9° 1 21'31	1°46'21	minimum elong	2459 Nov 18 00:47	25° 1 41'29	1°39'12
min. Earth dist.	2452 Apr 29 14:03	9° 1 20'09	29.33994 AU	retrograde	2460 Feb 28 04:42	28° 1 08'07	
direct	2452 Jul 18 21:41	7° 1 56'50		opposition	2460 May 16 14:38	26° 1 46'13	1°45'36
max. Earth dist.	2452 Nov 01 05:41	10° 1 25'21	31.34061 AU	min. Earth dist.	2460 May 17 10:18	26° 1 44'52	29.34092 AU
				direct	2460 Aug 05 21:10	25° 1 21'48	
conjunction	2452 Nov 02 02:45	10° 1 27'19	1°39'48				
minimum elong	2452 Nov 02 02:45	10° 1 27'19	1°39'47	conjunction	2460 Nov 19 10:23	27° 1 51'47	1°38'31
retrograde	2453 Feb 12 03:50	12° 1 53'45		minimum elong	2460 Nov 19 10:23	27° 1 51'47	1°38'31
opposition	2453 May 01 05:31	11° 1 31'57	1°46'47	max. Earth dist.	2460 Nov 18 14:08	27° 1 49'53	31.33759 AU
min. Earth dist.	2453 May 02 02:07	11° 1 30'32	29.34354 AU		2461 Jan 27 13:20	0° 1	
direct	2453 Jul 21 08:45	10° 1 07'21		retrograde	2461 Mar 01 15:20	0° 1 18'26	
					2461 Apr 04 13:49	30° 1	
conjunction	2453 Nov 04 12:47	12° 1 37'48	1°40'08	opposition	2461 May 19 02:18	28° 1 56'28	1°44'50
minimum elong	2453 Nov 04 12:47	12° 1 37'48	1°40'09	min. Earth dist.	2461 May 19 20:39	28° 1 55'13	29.33633 AU
max. Earth dist.	2453 Nov 03 15:21	12° 1 35'47	31.34417 AU	direct	2461 Aug 08 08:30	27° 1 32'02	
	2454 Jan 29 21:04	15° 1			2461 Nov 20 23:27	0° 1	
retrograde	2454 Feb 14 15:00	15° 1 04'15					
	2454 Mar 02 14:31	15° 1		conjunction	2461 Nov 21 20:00	0° 1 01'56	1°37'44
opposition	2454 May 03 16:45	13° 1 42'29	1°47'05	minimum elong	2461 Nov 21 20:00	0° 1 01'56	1°37'44
min. Earth dist.	2454 May 04 12:14	13° 1 41'09	29.34682 AU	max. Earth dist.	2461 Nov 21 01:08	0° 1 00'09	31.33296 AU
direct	2454 Jul 23 19:49	12° 1 17'57		retrograde	2462 Mar 03 23:31	2° 1 28'37	
				opposition	2462 May 21 14:09	1° 1 06'35	1°43'55
conjunction	2454 Nov 06 22:55	14° 1 48'23	1°40'20	min. Earth dist.	2462 May 22 08:48	1° 1 05'19	29.33192 AU
minimum elong	2454 Nov 06 22:55	14° 1 48'22	1°40'19		2462 Jul 07 15:44	30° 1	

direct	2462 Aug 10 19:46	29° 11 42'10		conjunction	2470 Dec 11 09:05	19° 27 35'52	1°24'30
	2462 Sep 13 04:37	0° 27		minimum elong	2470 Dec 11 09:05	19° 27 35'52	1°24'30
max. Earth dist.	2462 Nov 23 10:53	2° 27 10'14	31.32901 AU	max. Earth dist.	2470 Dec 10 19:38	19° 27 34'36	31.30258 AU
				retrograde	2471 Mar 23 23:32	22° 27 03'27	
conjunction	2462 Nov 24 05:27	2° 27 11'58	1°36'48	opposition	2471 Jun 11 03:12	20° 27 41'17	1°29'10
minimum elong	2462 Nov 24 05:28	2° 27 11'58	1°36'48	min. Earth dist.	2471 Jun 11 16:44	20° 27 40'22	29.29975 AU
retrograde	2463 Mar 06 10:11	4° 27 38'42		direct	2471 Aug 31 03:45	19° 27 17'20	
opposition	2463 May 24 01:58	3° 27 16'39	1°42'51				
min. Earth dist.	2463 May 24 18:46	3° 27 15'30	29.32834 AU	conjunction	2471 Dec 13 18:25	21° 27 46'44	1°22'24
direct	2463 Aug 13 06:41	1° 27 52'15		minimum elong	2471 Dec 13 18:25	21° 27 46'44	1°22'24
				max. Earth dist.	2471 Dec 13 05:08	21° 27 45'29	31.29518 AU
conjunction	2463 Nov 26 14:51	4° 27 22'00	1°35'44	retrograde	2472 Mar 25 10:10	24° 27 14'24	
minimum elong	2463 Nov 26 14:51	4° 27 22'00	1°35'45	opposition	2472 Jun 12 15:31	22° 27 52'10	1°26'51
max. Earth dist.	2463 Nov 25 21:14	4° 27 20'21	31.32587 AU	min. Earth dist.	2472 Jun 13 03:30	22° 27 51'21	29.29169 AU
retrograde	2464 Mar 07 20:36	6° 27 48'50		direct	2472 Sep 01 14:52	21° 27 28'12	
opposition	2464 May 25 13:55	5° 27 26'44	1°41'39				
min. Earth dist.	2464 May 26 06:57	5° 27 25'35	29.32566 AU	conjunction	2472 Dec 15 03:47	23° 27 57'31	1°20'10
direct	2464 Aug 14 16:22	4° 27 02'24		minimum elong	2472 Dec 15 03:48	23° 27 57'31	1°20'10
max. Earth dist.	2464 Nov 27 07:45	6° 27 30'33	31.32362 AU	max. Earth dist.	2472 Dec 14 15:05	23° 27 56'19	31.28672 AU
				retrograde	2473 Mar 27 20:36	26° 27 25'16	
conjunction	2464 Nov 28 00:19	6° 27 32'06	1°34'32	opposition	2473 Jun 15 03:53	25° 27 02'57	1°24'25
minimum elong	2464 Nov 28 00:19	6° 27 32'06	1°34'31	min. Earth dist.	2473 Jun 15 16:15	25° 27 02'06	29.28303 AU
retrograde	2465 Mar 10 07:38	8° 27 59'01		direct	2473 Sep 04 01:00	23° 27 38'58	
opposition	2465 May 28 01:40	7° 27 36'57	1°40'17				
min. Earth dist.	2465 May 28 17:15	7° 27 35'53	29.32352 AU	conjunction	2473 Dec 17 13:06	26° 27 08'11	1°17'50
direct	2465 Aug 17 05:17	6° 27 12'40		minimum elong	2473 Dec 17 13:07	26° 27 08'11	1°17'51
				max. Earth dist.	2473 Dec 17 01:43	26° 27 07'07	31.27810 AU
conjunction	2465 Nov 30 09:45	8° 27 42'21	1°33'11	retrograde	2474 Mar 30 07:27	28° 27 36'01	
minimum elong	2465 Nov 30 09:45	8° 27 42'21	1°33'12	opposition	2474 Jun 17 16:19	27° 27 13'36	1°21'52
max. Earth dist.	2465 Nov 29 17:13	8° 27 40'48	31.32167 AU	min. Earth dist.	2474 Jun 18 02:58	27° 27 12'53	29.27443 AU
retrograde	2466 Mar 12 20:19	11° 27 09'23		direct	2474 Sep 06 13:56	25° 27 49'38	
opposition	2466 May 30 13:46	9° 27 47'18	1°38'46				
min. Earth dist.	2466 May 31 05:12	9° 27 46'16	29.32165 AU	conjunction	2474 Dec 19 22:10	28° 27 18'46	1°15'24
direct	2466 Aug 19 16:00	8° 27 23'07		minimum elong	2474 Dec 19 22:10	28° 27 18'46	1°15'23
				max. Earth dist.	2474 Dec 19 11:01	28° 27 17'43	31.26982 AU
conjunction	2466 Dec 02 19:09	10° 27 52'46	1°31'42		2475 Feb 07 02:21	0° 28	
minimum elong	2466 Dec 02 19:09	10° 27 52'46	1°31'42	retrograde	2475 Apr 01 20:00	0° 28 46'42	
max. Earth dist.	2466 Dec 02 04:10	10° 27 51'22	31.31972 AU		2475 May 28 08:56	30° 28 R	
retrograde	2467 Mar 15 06:01	13° 27 19'56		opposition	2475 Jun 20 04:51	29° 27 24'11	1°19'12
opposition	2467 Jun 02 01:57	11° 27 57'51	1°37'07	min. Earth dist.	2475 Jun 20 14:54	29° 27 23'31	29.26666 AU
min. Earth dist.	2467 Jun 02 16:42	11° 27 56'52	29.31935 AU	direct	2475 Sep 08 23:54	28° 27 00'13	
direct	2467 Aug 22 04:32	10° 27 33'44			2475 Dec 09 07:09	0° 28	
conjunction	2467 Dec 05 04:33	13° 27 03'22	1°30'06	conjunction	2475 Dec 22 07:28	0° 28 29'17	1°12'51
minimum elong	2467 Dec 05 04:33	13° 27 03'22	1°30'07	minimum elong	2475 Dec 22 07:28	0° 28 29'17	1°12'52
max. Earth dist.	2467 Dec 04 13:04	13° 27 01'55	31.31716 AU	max. Earth dist.	2475 Dec 21 22:17	0° 28 28'25	31.26256 AU
retrograde	2468 Mar 16 17:47	15° 27 30'38		retrograde	2476 Apr 03 05:47	2° 28 57'19	
opposition	2468 Jun 03 14:02	14° 27 08'34	1°35'20	opposition	2476 Jun 21 17:11	1° 28 34'46	1°16'25
min. Earth dist.	2468 Jun 04 04:11	14° 27 07'37	29.31642 AU	min. Earth dist.	2476 Jun 22 02:04	1° 28 34'10	29.25981 AU
direct	2468 Aug 23 15:53	12° 27 44'31		direct	2476 Sep 10 12:09	0° 28 10'50	
conjunction	2468 Dec 06 14:08	15° 27 14'07	1°28'21	conjunction	2476 Dec 23 16:35	2° 28 39'50	1°10'11
minimum elong	2468 Dec 06 14:08	15° 27 14'07	1°28'21	minimum elong	2476 Dec 23 16:35	2° 28 39'50	1°10'11
max. Earth dist.	2468 Dec 06 00:08	15° 27 12'48	31.31364 AU	max. Earth dist.	2476 Dec 23 07:21	2° 28 38'58	31.25632 AU
retrograde	2469 Mar 19 03:34	17° 27 41'30		retrograde	2477 Apr 05 18:32	5° 28 08'00	
opposition	2469 Jun 06 02:23	16° 27 19'25	1°33'25	opposition	2477 Jun 24 05:40	3° 28 45'24	1°13'31
min. Earth dist.	2469 Jun 06 16:43	16° 27 18'27	29.31220 AU	min. Earth dist.	2477 Jun 24 13:20	3° 28 44'53	29.25401 AU
direct	2469 Aug 26 04:50	14° 27 55'25		direct	2477 Sep 12 23:34	2° 28 21'31	
conjunction	2469 Dec 08 23:31	17° 27 24'58	1°26'29	conjunction	2477 Dec 26 01:48	4° 28 50'29	1°07'25
minimum elong	2469 Dec 08 23:31	17° 27 24'58	1°26'30	minimum elong	2477 Dec 26 01:48	4° 28 50'29	1°07'26
max. Earth dist.	2469 Dec 08 09:01	17° 27 23'36	31.30883 AU	max. Earth dist.	2477 Dec 25 18:37	4° 28 49'49	31.25086 AU
retrograde	2470 Mar 21 14:57	19° 27 52'27		retrograde	2478 Apr 08 05:10	7° 28 18'47	
opposition	2470 Jun 08 14:41	18° 27 30'20	1°31'21	opposition	2478 Jun 26 18:22	5° 28 56'10	1°10'31
min. Earth dist.	2470 Jun 09 03:43	18° 27 29'27	29.30667 AU	min. Earth dist.	2478 Jun 27 01:40	5° 28 55'40	29.24874 AU
direct	2470 Aug 28 16:20	17° 27 06'22		direct	2478 Sep 15 12:21	4° 28 32'21	

conjunction	2478 Dec 28 10:58	7° $\overline{3}$ 01'16	1°04'33	retrograde	2487 Apr 28 13:43	27° $\overline{3}$ 01'47	
minimum elong	2478 Dec 28 10:58	7° $\overline{3}$ 01'17	1°04'33	opposition	2487 Jul 17 14:27	25° $\overline{3}$ 38'40	0°39'20
max. Earth dist.	2478 Dec 28 03:53	7° $\overline{3}$ 00'36	31.24590 AU	min. Earth dist.	2487 Jul 17 15:12	25° $\overline{3}$ 38'37	29.17331 AU
retrograde	2479 Apr 10 17:10	9° $\overline{3}$ 29'44		direct	2487 Oct 05 19:25	24° $\overline{3}$ 15'08	
opposition	2479 Jun 29 06:58	8° $\overline{3}$ 07'05	1°07'24				
min. Earth dist.	2479 Jun 29 12:33	8° $\overline{3}$ 06'43	29.24379 AU	conjunction	2488 Jan 16 23:52	26° $\overline{3}$ 43'38	0°35'02
direct	2479 Sep 17 23:26	6° $\overline{3}$ 43'20		minimum elong	2488 Jan 16 23:52	26° $\overline{3}$ 43'38	0°35'03
				max. Earth dist.	2488 Jan 16 23:33	26° $\overline{3}$ 43'37	31.16807 AU
conjunction	2479 Dec 30 20:15	9° $\overline{3}$ 12'14	1°01'35	retrograde	2488 Apr 30 02:03	29° $\overline{3}$ 13'25	
minimum elong	2479 Dec 30 20:15	9° $\overline{3}$ 12'14	1°01'36	opposition	2488 Jul 19 03:20	27° $\overline{3}$ 50'13	0°35'30
max. Earth dist.	2479 Dec 30 14:29	9° $\overline{3}$ 11'42	31.24080 AU	min. Earth dist.	2488 Jul 19 02:08	27° $\overline{3}$ 50'18	29.16325 AU
retrograde	2480 Apr 12 02:51	11° $\overline{3}$ 40'51		direct	2488 Oct 07 06:43	26° $\overline{3}$ 26'43	
opposition	2480 Jun 30 19:49	10° $\overline{3}$ 18'11	1°04'11				
min. Earth dist.	2480 Jul 01 01:40	10° $\overline{3}$ 17'48	29.23845 AU	conjunction	2489 Jan 18 09:21	28° $\overline{3}$ 55'11	0°31'26
direct	2480 Sep 19 10:58	8° $\overline{3}$ 54'31		minimum elong	2489 Jan 18 09:21	28° $\overline{3}$ 55'11	0°31'25
				max. Earth dist.	2489 Jan 18 10:27	28° $\overline{3}$ 55'17	31.15839 AU
conjunction	2481 Jan 01 05:37	11° $\overline{3}$ 23'22	0°58'32		2489 Feb 16 20:01	0° \approx	
minimum elong	2481 Jan 01 05:37	11° $\overline{3}$ 23'22	0°58'31	retrograde	2489 May 02 12:07	1° \approx 25'07	
max. Earth dist.	2481 Jan 01 00:19	11° $\overline{3}$ 22'52	31.23521 AU	opposition	2489 Jul 21 16:22	0° \approx 01'52	0°31'38
retrograde	2481 Apr 14 14:21	13° $\overline{3}$ 52'08		min. Earth dist.	2489 Jul 21 15:02	0° \approx 01'57	29.15407 AU
opposition	2481 Jul 03 08:30	12° $\overline{3}$ 29'28	1°00'52		2489 Jul 22 19:53	30° \overline{R} $\overline{3}$	
min. Earth dist.	2481 Jul 03 12:43	12° $\overline{3}$ 29'11	29.23232 AU	direct	2489 Oct 09 18:52	28° $\overline{3}$ 38'24	
direct	2481 Sep 21 22:22	11° $\overline{3}$ 05'51			2489 Dec 21 07:50	0° \approx	
conjunction	2482 Jan 03 15:05	13° $\overline{3}$ 34'40	0°55'24	conjunction	2490 Jan 20 18:51	1° \approx 06'51	0°27'47
minimum elong	2482 Jan 03 15:05	13° $\overline{3}$ 34'40	0°55'24	minimum elong	2490 Jan 20 18:52	1° \approx 06'51	0°27'48
max. Earth dist.	2482 Jan 03 10:13	13° $\overline{3}$ 34'13	31.22854 AU	max. Earth dist.	2490 Jan 20 20:59	1° \approx 07'03	31.14981 AU
retrograde	2482 Apr 17 01:44	16° $\overline{3}$ 03'37		retrograde	2490 May 05 00:29	3° \approx 36'57	
opposition	2482 Jul 05 21:36	14° $\overline{3}$ 40'54	0°57'28	opposition	2490 Jul 24 05:22	2° \approx 13'39	0°27'42
min. Earth dist.	2482 Jul 06 02:12	14° $\overline{3}$ 40'35	29.22510 AU	min. Earth dist.	2490 Jul 24 01:55	2° \approx 13'53	29.14581 AU
direct	2482 Sep 24 08:28	13° $\overline{3}$ 17'19		direct	2490 Oct 12 06:43	0° \approx 50'15	
conjunction	2483 Jan 06 00:34	15° $\overline{3}$ 46'06	0°52'10	conjunction	2491 Jan 23 04:20	3° \approx 18'40	0°24'06
minimum elong	2483 Jan 06 00:34	15° $\overline{3}$ 46'06	0°52'10	minimum elong	2491 Jan 23 04:20	3° \approx 18'40	0°24'05
max. Earth dist.	2483 Jan 05 20:52	15° $\overline{3}$ 45'45	31.22072 AU	max. Earth dist.	2491 Jan 23 07:11	3° \approx 18'56	31.14183 AU
retrograde	2483 Apr 19 13:09	18° $\overline{3}$ 15'12		retrograde	2491 May 07 11:43	5° \approx 48'58	
opposition	2483 Jul 08 10:34	16° $\overline{3}$ 52'26	0°53'59	opposition	2491 Jul 26 18:32	4° \approx 25'38	0°23'43
min. Earth dist.	2483 Jul 08 13:48	16° $\overline{3}$ 52'13	29.21646 AU	min. Earth dist.	2491 Jul 26 15:11	4° \approx 25'52	29.13809 AU
direct	2483 Sep 26 20:49	15° $\overline{3}$ 28'53		direct	2491 Oct 14 16:50	3° \approx 02'17	
conjunction	2484 Jan 08 10:06	17° $\overline{3}$ 57'37	0°48'52	conjunction	2492 Jan 25 14:04	5° \approx 30'41	0°20'22
minimum elong	2484 Jan 08 10:06	17° $\overline{3}$ 57'37	0°48'53	minimum elong	2492 Jan 25 14:04	5° \approx 30'41	0°20'22
max. Earth dist.	2484 Jan 08 06:03	17° $\overline{3}$ 57'15	31.21141 AU	max. Earth dist.	2492 Jan 25 18:28	5° \approx 31'05	31.13426 AU
retrograde	2484 Apr 21 02:11	20° $\overline{3}$ 26'52		retrograde	2492 May 08 22:48	8° \approx 01'09	
opposition	2484 Jul 09 23:27	19° $\overline{3}$ 04'01	0°50'25	opposition	2492 Jul 28 07:26	6° \approx 37'48	0°19'43
min. Earth dist.	2484 Jul 10 02:36	19° $\overline{3}$ 03'48	29.20654 AU	min. Earth dist.	2492 Jul 28 02:32	6° \approx 38'08	29.13041 AU
direct	2484 Sep 28 06:25	17° $\overline{3}$ 40'29		direct	2492 Oct 16 04:28	5° \approx 14'30	
conjunction	2485 Jan 09 19:44	20° $\overline{3}$ 09'10	0°45'30	conjunction	2493 Jan 26 23:47	7° \approx 42'54	0°16'36
minimum elong	2485 Jan 09 19:44	20° $\overline{3}$ 09'10	0°45'30	minimum elong	2493 Jan 26 23:47	7° \approx 42'54	0°16'35
max. Earth dist.	2485 Jan 09 17:16	20° $\overline{3}$ 08'56	31.20095 AU	max. Earth dist.	2493 Jan 27 04:00	7° \approx 43'17	31.12646 AU
retrograde	2485 Apr 23 12:49	22° $\overline{3}$ 38'32		retrograde	2493 May 11 12:01	10° \approx 13'34	
opposition	2485 Jul 12 12:26	21° $\overline{3}$ 15'36	0°46'47	opposition	2493 Jul 30 20:41	8° \approx 50'09	0°15'40
min. Earth dist.	2485 Jul 12 14:44	21° $\overline{3}$ 15'26	29.19551 AU	min. Earth dist.	2493 Jul 30 15:34	8° \approx 50'30	29.12245 AU
direct	2485 Sep 30 18:56	19° $\overline{3}$ 52'04		direct	2493 Oct 18 13:15	7° \approx 26'54	
conjunction	2486 Jan 12 05:00	22° $\overline{3}$ 20'41	0°42'05	conjunction	2494 Jan 29 09:38	9° \approx 55'17	0°12'48
minimum elong	2486 Jan 12 05:00	22° $\overline{3}$ 20'41	0°42'05	minimum elong	2494 Jan 29 09:38	9° \approx 55'17	0°12'49
max. Earth dist.	2486 Jan 12 02:23	22° $\overline{3}$ 20'26	31.18975 AU	behind sun begin	2494 Jan 29 05:33	9° \approx 54'54	
retrograde	2486 Apr 26 02:22	24° $\overline{3}$ 50'10		behind sun end	2494 Jan 29 13:42	9° \approx 55'39	
opposition	2486 Jul 15 01:28	23° $\overline{3}$ 27'08	0°43'05	max. Earth dist.	2494 Jan 29 15:34	9° \approx 55'49	31.11811 AU
min. Earth dist.	2486 Jul 15 02:40	23° $\overline{3}$ 27'03	29.18426 AU	retrograde	2494 May 13 23:38	12° \approx 26'08	
direct	2486 Oct 03 06:37	22° $\overline{3}$ 03'36		opposition	2494 Aug 02 09:58	11° \approx 02'40	0°11'35
				min. Earth dist.	2494 Aug 02 04:00	11° \approx 03'04	29.11358 AU
conjunction	2487 Jan 14 14:31	24° $\overline{3}$ 32'10	0°38'35	direct	2494 Oct 21 01:41	9° \approx 39'27	
minimum elong	2487 Jan 14 14:31	24° $\overline{3}$ 32'10	0°38'35				
max. Earth dist.	2487 Jan 14 13:53	24° $\overline{3}$ 32'06	31.17855 AU	conjunction	2495 Jan 31 19:33	12° \approx 07'48	0°09'00

minimum elong	2495 Jan 31 19:34	12°07'48	0°09'00	max. Earth dist.	2501 Feb 14 19:03	25°23'56	31.03564 AU
behind sun begin	2495 Jan 31 14:04	12°07'18		retrograde	2501 May 30 14:19	27°54'44	
behind sun end	2495 Feb 01 01:03	12°08'18		opposition	2501 Aug 19 06:23	26°30'36	0°-17'-3
max. Earth dist.	2495 Feb 01 01:02	12°08'18	31.10876 AU	min. Earth dist.	2501 Aug 18 18:58	26°31'23	29.03026 AU
retrograde	2495 May 16 14:11	14°38'49		direct	2501 Nov 06 12:52	25°07'19	
opposition	2495 Aug 04 23:11	13°15'18	0°07'30				
min. Earth dist.	2495 Aug 04 16:33	13°15'45	29.10368 AU	conjunction	2502 Feb 16 18:08	27°35'24	0°-17'-51
direct	2495 Oct 23 12:25	11°52'05		minimum elong	2502 Feb 16 18:09	27°35'24	0°17'51
				max. Earth dist.	2502 Feb 17 05:06	27°36'26	31.02505 AU
conjunction	2496 Feb 03 05:44	14°20'25	0°05'11		2502 May 11 21:20	0°	
minimum elong	2496 Feb 03 05:43	14°20'25	0°05'12	retrograde	2502 Jun 02 03:24	0°07'25	
behind sun begin	2496 Feb 02 23:30	14°19'52			2502 Jun 23 18:18	30°	
behind sun end	2496 Feb 03 11:56	14°20'59		opposition	2502 Aug 21 19:37	28°43'13	0°-21'-6
max. Earth dist.	2496 Feb 03 12:35	14°21'03	31.09808 AU	min. Earth dist.	2502 Aug 21 07:44	28°44'01	29.02036 AU
	2496 Feb 20 19:11	15°		direct	2502 Nov 08 21:53	27°19'57	
retrograde	2496 May 18 02:07	16°51'35					
opposition	2496 Aug 06 12:31	15°27'58	0°03'24	conjunction	2503 Feb 19 04:31	29°48'02	0°-21'-37
min. Earth dist.	2496 Aug 06 05:55	15°28'25	29.09227 AU	minimum elong	2503 Feb 19 04:31	29°48'02	0°21'38
	2496 Aug 24 00:20	15°		max. Earth dist.	2503 Feb 19 17:27	29°49'15	31.01564 AU
direct	2496 Oct 25 00:43	14°04'45			2503 Feb 24 10:27	0°	
	2496 Dec 22 12:58	15°		retrograde	2503 Jun 04 15:06	2°20'13	
				opposition	2503 Aug 24 08:37	0°55'59	0°-25'-7
conjunction	2497 Feb 04 15:43	16°33'02	0°01'19	min. Earth dist.	2503 Aug 23 19:36	0°56'52	29.01140 AU
minimum elong	2497 Feb 04 15:43	16°33'02	0°01'18		2503 Sep 30 17:24	30°	
behind sun begin	2497 Feb 04 09:19	16°32'28		direct	2503 Nov 11 09:51	29°32'46	
behind sun end	2497 Feb 04 22:07	16°33'37			2503 Dec 21 15:56	0°	
max. Earth dist.	2497 Feb 04 22:27	16°33'39	31.08614 AU				
retrograde	2497 May 20 15:30	19°04'20		conjunction	2504 Feb 21 14:48	2°00'52	0°-25'-21
desc. node	2497 Jun 06 09:34	18°59'48		minimum elong	2504 Feb 21 14:48	2°00'52	0°25'22
opposition	2497 Aug 09 01:44	17°40'36	0°00'-42	max. Earth dist.	2504 Feb 22 03:34	2°02'05	31.00715 AU
min. Earth dist.	2497 Aug 08 17:44	17°41'09	29.07976 AU	retrograde	2504 Jun 06 05:45	4°33'15	
direct	2497 Oct 27 12:29	16°17'22		opposition	2504 Aug 25 21:45	3°08'59	0°-29'-6
				min. Earth dist.	2504 Aug 25 07:51	3°09'55	29.00327 AU
conjunction	2498 Feb 07 01:51	18°45'36	0°-2'-37	direct	2504 Nov 12 19:40	1°45'48	
minimum elong	2498 Feb 07 01:50	18°45'36	0°02'38				
behind sun begin	2498 Feb 06 19:26	18°45'01		conjunction	2505 Feb 23 01:15	4°13'57	0°-29'-4
behind sun end	2498 Feb 07 08:13	18°46'11		minimum elong	2505 Feb 23 01:15	4°13'57	0°29'05
max. Earth dist.	2498 Feb 07 09:33	18°46'19	31.07319 AU	max. Earth dist.	2505 Feb 23 15:44	4°15'19	30.99910 AU
retrograde	2498 May 23 03:09	21°17'01		retrograde	2505 Jun 08 18:02	6°46'31	
opposition	2498 Aug 11 15:06	19°53'10	0°-4'-48	opposition	2505 Aug 28 10:59	5°22'13	0°-33'-3
min. Earth dist.	2498 Aug 11 07:18	19°53'42	29.06665 AU	min. Earth dist.	2505 Aug 27 20:56	5°23'10	28.99535 AU
direct	2498 Oct 30 01:20	18°29'55		direct	2505 Nov 15 06:51	3°59'06	
conjunction	2499 Feb 09 11:51	20°58'05	0°-6'-27	conjunction	2506 Feb 25 11:51	6°27'16	0°-32'-44
minimum elong	2499 Feb 09 11:51	20°58'05	0°06'29	minimum elong	2506 Feb 25 11:50	6°27'16	0°32'44
behind sun begin	2499 Feb 09 05:49	20°57'32		max. Earth dist.	2506 Feb 26 02:22	6°28'38	30.99127 AU
behind sun end	2499 Feb 09 17:53	20°58'38		retrograde	2506 Jun 11 08:48	9°00'01	
max. Earth dist.	2499 Feb 09 20:29	20°58'53	31.06012 AU	min. Earth dist.	2506 Aug 30 08:48	7°36'44	28.98743 AU
retrograde	2499 May 25 16:10	23°29'37		opposition	2506 Aug 31 00:09	7°35'41	0°-36'-57
opposition	2499 Aug 14 04:13	22°05'39	0°-8'-54	direct	2506 Nov 17 17:55	6°12'36	
min. Earth dist.	2499 Aug 13 18:31	22°06'19	29.05368 AU				
direct	2499 Nov 01 14:08	20°42'22		conjunction	2507 Feb 27 22:36	8°40'48	0°-36'-21
				minimum elong	2507 Feb 27 22:36	8°40'48	0°36'23
conjunction	2500 Feb 11 21:56	23°10'30	0°-10'-15	max. Earth dist.	2507 Feb 28 13:51	8°42'15	30.98295 AU
minimum elong	2500 Feb 11 21:56	23°10'30	0°10'16	retrograde	2507 Jun 13 22:13	11°13'44	
behind sun begin	2500 Feb 11 16:49	23°10'02		opposition	2507 Sep 02 13:27	9°49'21	0°-40'-48
behind sun end	2500 Feb 12 03:04	23°10'58		min. Earth dist.	2507 Sep 01 22:39	9°50'22	28.97880 AU
max. Earth dist.	2500 Feb 12 07:05	23°11'21	31.04735 AU	direct	2507 Nov 20 06:38	8°26'19	
retrograde	2500 May 28 03:10	25°42'10					
opposition	2500 Aug 16 17:18	24°18'07	0°-12'-59	conjunction	2508 Mar 01 09:36	10°54'32	0°-39'-55
min. Earth dist.	2500 Aug 16 07:44	24°18'46	29.04144 AU	minimum elong	2508 Mar 01 09:36	10°54'32	0°39'56
direct	2500 Nov 04 00:47	22°54'49		max. Earth dist.	2508 Mar 02 01:15	10°56'01	30.97386 AU
				retrograde	2508 Jun 15 12:45	13°27'36	
conjunction	2501 Feb 14 08:09	25°22'55	0°-14'-3	min. Earth dist.	2508 Sep 03 10:18	12°04'17	28.96917 AU
minimum elong	2501 Feb 14 08:09	25°22'55	0°14'05	opposition	2508 Sep 04 02:28	12°03'11	0°-44'-35
behind sun begin	2501 Feb 14 04:51	25°22'37		direct	2508 Nov 21 19:31	10°40'08	
behind sun end	2501 Feb 14 11:27	25°23'13					

conjunction	2509 Mar 03 20:33	13° ✕ 08'21	0°-43'-26	conjunction	2517 Mar 21 14:10	0° Υ 58'34	-1°-8'-48
minimum elong	2509 Mar 03 20:33	13° ✕ 08'21	0°43'27	minimum elong	2517 Mar 21 14:10	0° Υ 58'34	1°08'50
max. Earth dist.	2509 Mar 04 12:05	13° ✕ 09'50	30.96363 AU	max. Earth dist.	2517 Mar 22 11:15	1° Υ 00'34	30.89141 AU
retrograde	2509 Jun 18 00:26	15° ✕ 41'34		retrograde	2517 Jul 06 08:23	3° Υ 32'40	
opposition	2509 Sep 06 15:48	14° ✕ 17'03	0°-48'-18	opposition	2517 Sep 24 23:26	2° Υ 07'38	-1°-15'-5
min. Earth dist.	2509 Sep 06 00:18	14° ✕ 18'07	28.95853 AU	min. Earth dist.	2517 Sep 24 02:17	2° Υ 09'05	28.88961 AU
direct	2509 Nov 24 06:35	12° ✕ 54'00		direct	2517 Dec 12 02:14	0° Υ 44'29	
conjunction	2510 Mar 06 07:35	15° ✕ 22'12	0°-46'-53	conjunction	2518 Mar 24 01:42	3° Υ 12'45	-1°-11'-34
minimum elong	2510 Mar 06 07:34	15° ✕ 22'12	0°46'53	minimum elong	2518 Mar 24 01:42	3° Υ 12'45	1°11'35
max. Earth dist.	2510 Mar 07 00:22	15° ✕ 23'47	30.95263 AU	max. Earth dist.	2518 Mar 24 22:49	3° Υ 14'45	30.88662 AU
retrograde	2510 Jun 20 12:32	17° ✕ 55'30		retrograde	2518 Jul 08 21:43	5° Υ 46'59	
opposition	2510 Sep 09 04:55	16° ✕ 30'54	0°-51'-57	opposition	2518 Sep 27 12:28	4° Υ 21'57	-1°-17'-59
min. Earth dist.	2510 Sep 08 12:10	16° ✕ 32'03	28.94721 AU	min. Earth dist.	2518 Sep 26 16:07	4° Υ 23'21	28.88503 AU
direct	2510 Nov 26 19:46	15° ✕ 07'49		direct	2518 Dec 14 13:09	2° Υ 58'50	
conjunction	2511 Mar 08 18:35	17° ✕ 35'59	0°-50'-15	conjunction	2519 Mar 26 13:41	5° Υ 27'10	-1°-14'-14
minimum elong	2511 Mar 08 18:34	17° ✕ 35'59	0°50'17	minimum elong	2519 Mar 26 13:41	5° Υ 27'10	1°14'15
max. Earth dist.	2511 Mar 09 10:54	17° ✕ 37'32	30.94118 AU	max. Earth dist.	2519 Mar 27 11:51	5° Υ 29'16	30.88197 AU
retrograde	2511 Jun 23 01:40	20° ✕ 09'24		retrograde	2519 Jul 11 11:42	8° Υ 01'31	
opposition	2511 Sep 11 17:54	18° ✕ 44'42	0°-55'-32	min. Earth dist.	2519 Sep 29 03:55	6° Υ 37'56	28.88019 AU
min. Earth dist.	2511 Sep 11 01:18	18° ✕ 45'50	28.93594 AU	opposition	2519 Sep 30 01:10	6° Υ 36'28	-1°-20'-46
direct	2511 Nov 29 05:52	17° ✕ 21'33		direct	2519 Dec 17 02:15	5° Υ 13'23	
conjunction	2512 Mar 10 05:46	19° ✕ 49'43	0°-53'-34	conjunction	2520 Mar 28 01:40	7° Υ 41'46	-1°-16'-46
minimum elong	2512 Mar 10 05:45	19° ✕ 49'43	0°53'34	minimum elong	2520 Mar 28 01:40	7° Υ 41'46	1°16'47
max. Earth dist.	2512 Mar 10 23:45	19° ✕ 51'25	30.93005 AU	max. Earth dist.	2520 Mar 28 22:52	7° Υ 43'47	30.87676 AU
retrograde	2512 Jun 24 12:33	22° ✕ 23'13		retrograde	2520 Jul 13 01:47	10° Υ 16'15	
opposition	2512 Sep 13 06:52	20° ✕ 58'25	0°-59'-1	opposition	2520 Oct 01 14:11	8° Υ 51'11	-1°-23'-25
min. Earth dist.	2512 Sep 12 13:17	20° ✕ 59'38	28.92518 AU	min. Earth dist.	2520 Sep 30 17:35	8° Υ 52'36	28.87467 AU
direct	2512 Nov 30 18:31	19° ✕ 35'15		direct	2520 Dec 18 12:45	7° Υ 28'06	
conjunction	2513 Mar 12 16:42	22° ✕ 03'22	0°-56'-47	conjunction	2521 Mar 30 13:48	9° Υ 56'32	-1°-19'-12
minimum elong	2513 Mar 12 16:42	22° ✕ 03'22	0°56'49	minimum elong	2521 Mar 30 13:48	9° Υ 56'32	1°19'13
max. Earth dist.	2513 Mar 13 10:27	22° ✕ 05'03	30.91979 AU	max. Earth dist.	2521 Mar 31 12:03	9° Υ 58'39	30.87065 AU
retrograde	2513 Jun 27 01:51	24° ✕ 37'00		retrograde	2521 Jul 15 13:29	12° Υ 31'06	
opposition	2513 Sep 15 19:53	23° ✕ 12'06	-1°-2'-26	min. Earth dist.	2521 Oct 03 06:08	11° Υ 07'28	28.86802 AU
min. Earth dist.	2513 Sep 15 01:30	23° ✕ 13'22	28.91562 AU	opposition	2521 Oct 04 03:07	11° Υ 06'00	-1°-25'-57
direct	2513 Dec 03 04:18	21° ✕ 48'54		direct	2521 Dec 21 01:35	9° Υ 42'56	
conjunction	2514 Mar 15 03:58	24° ✕ 17'03	0°-59'-56	conjunction	2522 Apr 02 02:00	12° Υ 11'23	-1°-21'-31
minimum elong	2514 Mar 15 03:58	24° ✕ 17'03	0°59'56	minimum elong	2522 Apr 02 01:59	12° Υ 11'23	1°21'31
max. Earth dist.	2514 Mar 15 23:24	24° ✕ 18'53	30.91075 AU	max. Earth dist.	2522 Apr 02 23:11	12° Υ 13'23	30.86360 AU
retrograde	2514 Jun 29 13:41	26° ✕ 50'46		retrograde	2522 Jul 18 03:05	14° Υ 46'01	
opposition	2514 Sep 18 08:49	25° ✕ 25'49	-1°-5'-45	opposition	2522 Oct 06 15:56	13° Υ 20'52	-1°-28'-22
min. Earth dist.	2514 Sep 17 14:11	25° ✕ 27'06	28.90731 AU	min. Earth dist.	2522 Oct 05 19:00	13° Υ 22'20	28.86063 AU
direct	2514 Dec 05 15:07	24° ✕ 02'37		direct	2522 Dec 23 11:44	11° Υ 57'45	
conjunction	2515 Mar 17 15:14	26° ✕ 30'46	-1°-2'-59	conjunction	2523 Apr 04 14:21	14° Υ 26'14	-1°-23'-42
minimum elong	2515 Mar 17 15:14	26° ✕ 30'46	1°03'00	minimum elong	2523 Apr 04 14:21	14° Υ 26'14	1°23'43
max. Earth dist.	2515 Mar 18 10:46	26° ✕ 32'37	30.90318 AU	max. Earth dist.	2523 Apr 05 12:31	14° Υ 28'20	30.85581 AU
retrograde	2515 Jul 02 04:22	29° ✕ 04'36		retrograde	2523 Jul 20 15:01	17° Υ 00'56	
opposition	2515 Sep 20 21:41	27° ✕ 39'36	-1°-8'-58	min. Earth dist.	2523 Oct 08 08:06	15° Υ 37'09	28.85270 AU
min. Earth dist.	2515 Sep 20 01:42	27° ✕ 40'59	28.90041 AU	opposition	2523 Oct 09 04:40	15° Υ 35'43	-1°-30'-38
direct	2515 Dec 08 02:14	26° ✕ 16'24		direct	2523 Dec 25 22:53	14° Υ 12'34	
conjunction	2516 Mar 19 02:38	28° ✕ 44'35	-1°-5'-57	conjunction	2524 Apr 06 02:33	16° Υ 41'03	-1°-25'-45
minimum elong	2516 Mar 19 02:37	28° ✕ 44'35	1°05'57	minimum elong	2524 Apr 06 02:33	16° Υ 41'03	1°25'46
max. Earth dist.	2516 Mar 19 23:01	28° ✕ 46'31	30.89671 AU	max. Earth dist.	2524 Apr 07 00:18	16° Υ 43'07	30.84796 AU
retrograde	2516 Apr 22 17:03	0° Υ		retrograde	2524 Jul 22 04:56	19° Υ 15'48	
opposition	2516 Jul 03 17:39	1° Υ 18'33		opposition	2524 Oct 10 17:13	17° Υ 50'31	-1°-32'-46
min. Earth dist.	2516 Sep 18 12:44	30° ✕		min. Earth dist.	2524 Oct 09 19:51	17° Υ 52'01	28.84507 AU
opposition	2516 Sep 22 10:34	29° ✕ 53'32	-1°-12'-5	direct	2524 Dec 27 10:22	16° Υ 27'19	
min. Earth dist.	2516 Sep 21 14:56	29° ✕ 54'53	28.89456 AU				
direct	2516 Dec 09 14:01	28° ✕ 30'21		conjunction	2525 Apr 08 14:54	18° Υ 55'50	-1°-27'-41
	2517 Feb 23 04:16	0° Υ		minimum elong	2525 Apr 08 14:53	18° Υ 55'50	1°27'42
				max. Earth dist.	2525 Apr 09 13:12	18° Υ 57'57	30.84053 AU

retrograde	2525 Jul 24 17:35	21°♊30'38		minimum elong	2533 Apr 26 20:54	6°♏56'12	1°38'07
min. Earth dist.	2525 Oct 12 09:04	20°♊06'45	28.83820 AU	max. Earth dist.	2533 Apr 27 19:28	6°♏58'20	30.81749 AU
opposition	2525 Oct 13 05:51	20°♊05'18	-1°-34'-45	retrograde	2533 Aug 12 06:48	9°♏31'19	
direct	2525 Dec 29 22:05	18°♊42'03		min. Earth dist.	2533 Oct 30 11:25	8°♏07'28	28.81743 AU
				opposition	2533 Oct 31 08:47	8°♏05'58	-1°-45'-16
conjunction	2526 Apr 11 03:15	21°♊10'36	-1°-29'-29	direct	2534 Jan 16 20:14	6°♏42'38	
minimum elong	2526 Apr 11 03:14	21°♊10'36	1°29'29				
max. Earth dist.	2526 Apr 12 01:57	21°♊12'45	30.83425 AU	conjunction	2534 Apr 29 10:14	9°♏11'40	-1°-38'-44
retrograde	2526 Jul 27 07:52	23°♊45'26		minimum elong	2534 Apr 29 10:13	9°♏11'39	1°38'45
opposition	2526 Oct 15 18:16	22°♊20'04	-1°-36'-36	max. Earth dist.	2534 Apr 30 08:40	9°♏13'47	30.81479 AU
min. Earth dist.	2526 Oct 14 20:12	22°♊21'36	28.83250 AU	retrograde	2534 Aug 14 18:40	11°♏46'45	
direct	2527 Jan 01 10:06	20°♊56'46		opposition	2534 Nov 02 21:07	10°♏21'23	-1°-45'-52
				min. Earth dist.	2534 Nov 02 01:03	10°♏22'47	28.81426 AU
conjunction	2527 Apr 13 15:43	23°♊25'23	-1°-31'-8	direct	2535 Jan 19 07:31	8°♏58'00	
minimum elong	2527 Apr 13 15:43	23°♊25'23	1°31'09				
max. Earth dist.	2527 Apr 14 14:17	23°♊27'31	30.82908 AU	conjunction	2535 May 01 23:39	11°♏27'03	-1°-39'-14
retrograde	2527 Jul 29 21:24	26°♊00'15		minimum elong	2535 May 01 23:39	11°♏27'03	1°39'15
min. Earth dist.	2527 Oct 17 09:25	24°♊36'21	28.82810 AU	max. Earth dist.	2535 May 02 21:34	11°♏29'07	30.81133 AU
opposition	2527 Oct 18 06:40	24°♊34'52	-1°-38'-18	retrograde	2535 Aug 17 08:38	14°♏02'05	
direct	2528 Jan 03 21:22	23°♊11'34		opposition	2535 Nov 05 09:05	12°♏36'41	-1°-46'-19
				min. Earth dist.	2535 Nov 04 12:26	12°♏38'08	28.81048 AU
conjunction	2528 Apr 15 04:21	25°♊40'13	-1°-32'-40	direct	2536 Jan 21 19:30	11°♏13'13	
minimum elong	2528 Apr 15 04:21	25°♊40'13	1°32'40				
max. Earth dist.	2528 Apr 16 03:59	25°♊42'27	30.82536 AU	conjunction	2536 May 03 12:57	13°♏42'18	-1°-39'-34
retrograde	2528 Jul 31 12:20	28°♊15'08		minimum elong	2536 May 03 12:57	13°♏42'18	1°39'35
opposition	2528 Oct 19 19:01	26°♊49'44	-1°-39'-51	max. Earth dist.	2536 May 04 10:13	13°♏44'18	30.80741 AU
min. Earth dist.	2528 Oct 18 20:40	26°♊51'18	28.82498 AU		2536 Jun 08 11:08	15°♏	
direct	2529 Jan 05 11:03	25°♊26'26		retrograde	2536 Aug 18 21:25	16°♏17'18	
					2536 Nov 02 01:05	15°♏♏	
conjunction	2529 Apr 17 16:47	27°♊55'09	-1°-34'-2	opposition	2536 Nov 06 21:13	14°♏51'51	-1°-46'-36
minimum elong	2529 Apr 17 16:47	27°♊55'09	1°34'04	min. Earth dist.	2536 Nov 06 01:51	14°♏53'13	28.80666 AU
max. Earth dist.	2529 Apr 18 15:42	27°♊57'19	30.82284 AU	direct	2537 Jan 23 07:14	13°♏28'19	
	2529 Jun 20 15:17	0°♏			2537 Apr 10 01:42	15°♏	
retrograde	2529 Aug 03 02:08	0°♏30'08					
	2529 Sep 16 09:39	30°♏♊		conjunction	2537 May 06 02:14	15°♏57'26	-1°-39'-46
min. Earth dist.	2529 Oct 21 09:44	29°♊06'15	28.82309 AU	minimum elong	2537 May 06 02:15	15°♏57'26	1°39'47
opposition	2529 Oct 22 07:33	29°♊04'44	-1°-41'-15	max. Earth dist.	2537 May 07 00:06	15°♏59'29	30.80384 AU
direct	2530 Jan 07 22:01	27°♊41'26		retrograde	2537 Aug 21 11:27	18°♏32'22	
	2530 Apr 15 17:40	0°♏		opposition	2537 Nov 09 09:06	17°♏06'53	-1°-46'-43
				min. Earth dist.	2537 Nov 08 13:03	17°♏08'18	28.80335 AU
conjunction	2530 Apr 20 05:41	0°♏10'13	-1°-35'-17	direct	2538 Jan 25 21:05	15°♏43'17	
minimum elong	2530 Apr 20 05:41	0°♏10'13	1°35'17				
max. Earth dist.	2530 Apr 21 05:47	0°♏12'29	30.82135 AU	conjunction	2538 May 08 15:34	18°♏12'26	-1°-39'-48
retrograde	2530 Aug 05 14:39	2°♏45'14		minimum elong	2538 May 08 15:34	18°♏12'26	1°39'49
opposition	2530 Oct 24 19:47	1°♏19'52	-1°-42'-30	max. Earth dist.	2538 May 09 12:23	18°♏14'24	30.80096 AU
min. Earth dist.	2530 Oct 23 21:38	1°♏21'24	28.82188 AU	retrograde	2538 Aug 24 00:47	20°♏47'19	
	2530 Dec 27 06:18	30°♏♊		opposition	2538 Nov 11 20:53	19°♏21'50	-1°-46'-41
direct	2531 Jan 10 10:37	29°♊56'35		min. Earth dist.	2538 Nov 11 01:46	19°♏23'10	28.80112 AU
	2531 Jan 24 08:58	0°♏		direct	2539 Jan 28 08:16	17°♏58'10	
conjunction	2531 Apr 22 18:35	2°♏25'25	-1°-36'-22	conjunction	2539 May 11 05:07	20°♏27'22	-1°-39'-41
minimum elong	2531 Apr 22 18:35	2°♏25'25	1°36'23	minimum elong	2539 May 11 05:07	20°♏27'22	1°39'42
max. Earth dist.	2531 Apr 23 17:30	2°♏27'35	30.82037 AU	max. Earth dist.	2539 May 12 02:50	20°♏29'24	30.79933 AU
retrograde	2531 Aug 08 05:13	5°♏00'29		retrograde	2539 Aug 26 13:45	23°♏02'12	
min. Earth dist.	2531 Oct 26 10:17	3°♏36'40	28.82098 AU	opposition	2539 Nov 14 08:36	21°♏36'42	-1°-46'-29
opposition	2531 Oct 27 08:09	3°♏35'08	-1°-43'-35	min. Earth dist.	2539 Nov 13 13:07	21°♏38'05	28.80012 AU
direct	2532 Jan 12 21:16	2°♏11'51		direct	2540 Jan 30 21:22	20°♏13'01	
conjunction	2532 Apr 24 07:41	4°♏40'46	-1°-37'-18	conjunction	2540 May 12 18:22	22°♏42'16	-1°-39'-25
minimum elong	2532 Apr 24 07:41	4°♏40'46	1°37'19	minimum elong	2540 May 12 18:22	22°♏42'16	1°39'26
max. Earth dist.	2532 Apr 25 07:21	4°♏43'00	30.81920 AU	max. Earth dist.	2540 May 13 14:53	22°♏44'12	30.79912 AU
retrograde	2532 Aug 09 17:19	7°♏15'52		retrograde	2540 Aug 28 04:20	25°♏17'04	
opposition	2532 Oct 28 20:29	5°♏50'32	-1°-44'-30	opposition	2540 Nov 15 20:19	23°♏51'35	-1°-46'-7
min. Earth dist.	2532 Oct 27 23:18	5°♏52'01	28.81955 AU	min. Earth dist.	2540 Nov 15 00:57	23°♏52'57	28.80076 AU
direct	2533 Jan 14 08:52	4°♏27'14		direct	2541 Feb 01 08:29	22°♏27'52	
conjunction	2533 Apr 26 20:54	6°♏56'12	-1°-38'-6	conjunction	2541 May 15 07:55	24°♏57'12	-1°-39'00

minimum elong	2541 May 15 07:55	24°♄57'12	1°39'02	minimum elong	2549 Jun 02 23:02	12°♄59'45	1°30'19
max. Earth dist.	2541 May 16 05:23	24°♄59'13	30.80049 AU	max. Earth dist.	2549 Jun 03 14:31	13°♄01'12	30.82662 AU
retrograde	2541 Aug 30 16:02	27°♄31'58		retrograde	2549 Sep 18 01:41	15°♄33'55	
opposition	2541 Nov 18 07:55	26°♄06'32	-1°-45'-35	opposition	2549 Dec 06 03:34	14°♄08'49	-1°-35'-38
min. Earth dist.	2541 Nov 17 13:00	26°♄07'53	28.80284 AU	min. Earth dist.	2549 Dec 05 13:17	14°♄09'50	28.82864 AU
direct	2542 Feb 03 20:12	24°♄42'49		direct	2550 Feb 21 18:40	12°♄44'49	
conjunction	2542 May 17 21:28	27°♄12'14	-1°-38'-26	conjunction	2550 Jun 05 13:08	15°♄14'46	-1°-28'-34
minimum elong	2542 May 17 21:28	27°♄12'14	1°38'27	minimum elong	2550 Jun 05 13:08	15°♄14'46	1°28'36
max. Earth dist.	2542 May 18 17:57	27°♄14'09	30.80340 AU	max. Earth dist.	2550 Jun 06 05:06	15°♄16'16	30.82909 AU
retrograde	2542 Sep 02 05:26	29°♄46'58		retrograde	2550 Sep 20 12:48	17°♄48'47	
opposition	2542 Nov 20 19:30	28°♄21'36	-1°-44'-54	opposition	2550 Dec 08 14:42	16°♄23'42	-1°-33'-43
min. Earth dist.	2542 Nov 20 00:19	28°♄22'58	28.80630 AU	min. Earth dist.	2550 Dec 08 01:12	16°♄24'39	28.83139 AU
direct	2543 Feb 06 07:12	26°♄57'53		direct	2551 Feb 24 07:24	14°♄59'37	
conjunction	2543 May 20 11:12	29°♄27'24	-1°-37'-43	conjunction	2551 Jun 08 03:02	17°♄29'36	-1°-26'-43
minimum elong	2543 May 20 11:13	29°♄27'24	1°37'44	minimum elong	2551 Jun 08 03:03	17°♄29'36	1°26'43
max. Earth dist.	2543 May 21 07:51	29°♄29'20	30.80724 AU	max. Earth dist.	2551 Jun 08 17:38	17°♄30'58	30.83240 AU
	2543 Jun 04 00:19	0°♄		retrograde	2551 Sep 23 02:18	20°♄03'28	
retrograde	2543 Sep 04 17:11	2°♄02'06		opposition	2551 Dec 11 01:39	18°♄38'24	-1°-31'-40
opposition	2543 Nov 23 07:02	0°♄36'49	-1°-44'-2	min. Earth dist.	2551 Dec 10 12:04	18°♄39'22	28.83526 AU
min. Earth dist.	2543 Nov 22 13:08	0°♄38'05	28.81047 AU	direct	2552 Feb 26 19:08	17°♄14'15	
	2543 Dec 15 19:06	30°♄		conjunction	2552 Jun 09 17:01	19°♄44'17	-1°-24'-43
direct	2544 Feb 08 17:26	29°♄13'07		minimum elong	2552 Jun 09 17:01	19°♄44'17	1°24'45
	2544 Apr 02 00:42	0°♄		max. Earth dist.	2552 Jun 10 07:49	19°♄45'40	30.83686 AU
conjunction	2544 May 22 01:02	1°♄42'43	-1°-36'-50	retrograde	2552 Sep 24 13:48	22°♄18'01	
minimum elong	2544 May 22 01:02	1°♄42'43	1°36'51	opposition	2552 Dec 12 12:43	20°♄52'58	-1°-29'-28
max. Earth dist.	2544 May 22 20:58	1°♄44'36	30.81172 AU	min. Earth dist.	2552 Dec 12 00:17	20°♄53'51	28.84043 AU
retrograde	2544 Sep 06 07:10	4°♄17'24		direct	2553 Feb 28 06:02	19°♄28'47	
opposition	2544 Nov 24 18:32	2°♄52'11	-1°-43'-1	conjunction	2553 Jun 12 06:53	21°♄58'50	-1°-22'-37
min. Earth dist.	2544 Nov 24 00:13	2°♄53'29	28.81491 AU	minimum elong	2553 Jun 12 06:54	21°♄58'51	1°22'37
direct	2545 Feb 10 04:22	1°♄28'28		max. Earth dist.	2553 Jun 12 20:56	22°♄00'09	30.84291 AU
conjunction	2545 May 24 14:51	3°♄58'10	-1°-35'-49	retrograde	2553 Sep 27 02:33	24°♄32'27	
minimum elong	2545 May 24 14:51	3°♄58'10	1°35'49	opposition	2553 Dec 14 23:37	23°♄07'28	-1°-27'-8
max. Earth dist.	2545 May 25 09:52	3°♄59'57	30.81594 AU	min. Earth dist.	2553 Dec 14 10:35	23°♄08'23	28.84714 AU
retrograde	2545 Sep 08 19:16	6°♄32'48		direct	2554 Mar 02 17:33	21°♄43'15	
opposition	2545 Nov 27 06:13	5°♄07'39	-1°-41'-51	conjunction	2554 Jun 14 20:56	24°♄13'22	-1°-20'-22
min. Earth dist.	2545 Nov 26 13:37	5°♄08'49	28.81887 AU	minimum elong	2554 Jun 14 20:56	24°♄13'22	1°20'23
direct	2546 Feb 12 15:56	3°♄43'54		max. Earth dist.	2554 Jun 15 10:20	24°♄14'37	30.85032 AU
conjunction	2546 May 27 05:02	6°♄13'41	-1°-34'-39	retrograde	2554 Sep 29 13:22	26°♄46'52	
minimum elong	2546 May 27 05:02	6°♄13'41	1°34'40	opposition	2554 Dec 17 10:32	25°♄21'57	-1°-24'-40
max. Earth dist.	2546 May 27 23:47	6°♄15'27	30.81959 AU	min. Earth dist.	2554 Dec 16 22:59	25°♄22'47	28.85522 AU
retrograde	2546 Sep 11 08:48	8°♄48'14		direct	2555 Mar 05 04:14	23°♄57'44	
opposition	2546 Nov 29 17:33	7°♄23'07	-1°-40'-31	conjunction	2555 Jun 17 11:03	26°♄27'56	-1°-18'00
min. Earth dist.	2546 Nov 29 00:54	7°♄24'18	28.82199 AU	minimum elong	2555 Jun 17 11:04	26°♄27'56	1°18'01
direct	2547 Feb 15 05:18	5°♄59'20		max. Earth dist.	2555 Jun 18 00:21	26°♄29'10	30.85911 AU
conjunction	2547 May 29 19:05	8°♄29'11	-1°-33'-20	retrograde	2555 Oct 02 02:09	29°♄01'18	
minimum elong	2547 May 29 19:05	8°♄29'11	1°33'21	opposition	2555 Dec 19 21:21	27°♄36'30	-1°-22'-4
max. Earth dist.	2547 May 30 12:05	8°♄30'46	30.82232 AU	min. Earth dist.	2555 Dec 19 09:31	27°♄37'21	28.86435 AU
retrograde	2547 Sep 13 22:01	11°♄03'37		direct	2556 Mar 06 16:23	26°♄12'17	
opposition	2547 Dec 02 05:05	9°♄38'31	-1°-39'-2	conjunction	2556 Jun 19 00:57	28°♄42'34	-1°-15'-30
min. Earth dist.	2547 Dec 01 13:55	9°♄39'35	28.82441 AU	minimum elong	2556 Jun 19 00:57	28°♄42'34	1°15'32
direct	2548 Feb 17 16:22	8°♄14'40		max. Earth dist.	2556 Jun 19 12:51	28°♄43'41	30.86858 AU
conjunction	2548 May 31 09:05	10°♄44'33	-1°-31'-53		2556 Jul 25 04:23	0°♄	
minimum elong	2548 May 31 09:05	10°♄44'33	1°31'54	retrograde	2556 Oct 03 14:47	1°♄15'52	
max. Earth dist.	2548 Jun 01 02:23	10°♄46'10	30.82453 AU		2556 Dec 16 03:04	30°♄	
retrograde	2548 Sep 15 11:14	13°♄18'51		opposition	2556 Dec 21 08:18	29°♄51'10	-1°-19'-20
opposition	2548 Dec 03 16:24	11°♄53'45	-1°-37'-24	min. Earth dist.	2556 Dec 20 21:58	29°♄51'53	28.87400 AU
min. Earth dist.	2548 Dec 03 01:24	11°♄54'49	28.82638 AU	direct	2557 Mar 09 02:38	28°♄26'56	
direct	2549 Feb 19 06:15	10°♄29'50			2557 May 26 10:08	0°♄	
conjunction	2549 Jun 02 23:01	12°♄59'45	-1°-30'-18	conjunction	2557 Jun 21 15:17	0°♄57'20	-1°-12'-54

minimum elong	2557 Jun 21 15:18	0°☾57'20	1°12'55	opposition	2566 Jan 10 07:58	20°☾01'05	0°-50'-5
max. Earth dist.	2557 Jun 22 03:14	0°☾58'27	30.87821 AU	min. Earth dist.	2566 Jan 10 05:06	20°☾01'17	28.94098 AU
retrograde	2557 Oct 06 03:42	3°☾30'30		direct	2566 Mar 29 13:31	18°☾36'27	
opposition	2557 Dec 23 19:03	2°☾05'54	-1°-16'-29				
min. Earth dist.	2557 Dec 23 09:14	2°☾06'36	28.88332 AU	conjunction	2566 Jul 12 22:26	21°☾07'16	0°-45'-8
direct	2558 Mar 11 16:00	0°☾41'40		minimum elong	2566 Jul 12 22:27	21°☾07'16	0°45'10
				max. Earth dist.	2566 Jul 13 02:00	21°☾07'36	30.94553 AU
conjunction	2558 Jun 24 05:33	3°☾12'10	-1°-10'-11	retrograde	2566 Oct 26 14:47	23°☾38'57	
minimum elong	2558 Jun 24 05:34	3°☾12'10	1°10'12	opposition	2567 Jan 12 18:21	22°☾14'52	0°-46'-24
max. Earth dist.	2558 Jun 24 15:11	3°☾13'03	30.88723 AU	min. Earth dist.	2567 Jan 12 15:36	22°☾15'03	28.95078 AU
retrograde	2558 Oct 08 17:52	5°☾45'13		direct	2567 Apr 01 02:53	20°☾50'12	
opposition	2558 Dec 26 05:56	4°☾20'42	-1°-13'-32				
min. Earth dist.	2558 Dec 25 21:11	4°☾21'19	28.89190 AU	conjunction	2567 Jul 15 12:09	23°☾21'04	0°-41'-40
direct	2559 Mar 14 04:12	2°☾56'26		minimum elong	2567 Jul 15 12:09	23°☾21'04	0°41'40
				max. Earth dist.	2567 Jul 15 13:56	23°☾21'14	30.95601 AU
conjunction	2559 Jun 26 19:56	5°☾27'00	-1°-7'-22	retrograde	2567 Oct 29 03:31	25°☾52'37	
minimum elong	2559 Jun 26 19:56	5°☾27'00	1°07'22	opposition	2568 Jan 15 04:42	24°☾28'36	0°-42'-38
max. Earth dist.	2559 Jun 27 05:28	5°☾27'54	30.89524 AU	min. Earth dist.	2568 Jan 15 02:33	24°☾28'45	28.96183 AU
retrograde	2559 Oct 11 05:20	7°☾59'55		direct	2568 Apr 02 14:23	23°☾03'56	
opposition	2559 Dec 28 16:46	6°☾35'28	-1°-10'-28				
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direct	2560 Mar 15 16:58	5°☾11'11		minimum elong	2568 Jul 17 02:06	25°☾34'52	0°38'09
				max. Earth dist.	2568 Jul 17 04:14	25°☾35'04	30.96749 AU
conjunction	2560 Jun 28 10:07	7°☾41'47	-1°-4'-26	retrograde	2568 Oct 30 14:44	28°☾06'16	
minimum elong	2560 Jun 28 10:07	7°☾41'47	1°04'28	opposition	2569 Jan 16 14:59	26°☾42'21	0°-38'-49
max. Earth dist.	2560 Jun 28 17:35	7°☾42'29	30.90238 AU	min. Earth dist.	2569 Jan 16 13:57	26°☾42'26	28.97349 AU
retrograde	2560 Oct 12 19:23	10°☾14'32		direct	2569 Apr 05 02:19	25°☾17'41	
opposition	2560 Dec 30 03:27	8°☾50'08	-1°-7'-17				
min. Earth dist.	2560 Dec 29 20:21	8°☾50'38	28.90606 AU	conjunction	2569 Jul 19 15:56	27°☾48'41	0°-34'-31
direct	2561 Mar 18 05:13	7°☾25'48		minimum elong	2569 Jul 19 15:56	27°☾48'41	0°34'31
				max. Earth dist.	2569 Jul 19 16:06	27°☾48'42	30.97935 AU
conjunction	2561 Jul 01 00:21	9°☾56'27	-1°-1'-26		2569 Sep 28 13:13	0°♂	
minimum elong	2561 Jul 01 00:21	9°☾56'27	1°01'26	retrograde	2569 Nov 02 04:49	0°♂19'56	
max. Earth dist.	2561 Jul 01 07:33	9°☾57'07	30.90879 AU		2569 Dec 07 03:49	30°♂☾	
retrograde	2561 Oct 15 06:58	12°☾29'01		opposition	2570 Jan 19 01:18	28°☾56'07	0°-34'-57
opposition	2562 Jan 01 14:11	11°☾04'40	-1°-4'-1	min. Earth dist.	2570 Jan 19 00:38	28°☾56'10	28.98523 AU
min. Earth dist.	2562 Jan 01 08:49	11°☾05'03	28.91222 AU	direct	2570 Apr 07 15:04	27°☾31'27	
direct	2562 Mar 20 16:52	9°☾40'16			2570 Jul 21 02:45	0°♂	
conjunction	2562 Jul 03 14:32	12°☾10'57	0°-58'-20	conjunction	2570 Jul 22 05:59	0°♂02'31	0°-30'-52
minimum elong	2562 Jul 03 14:32	12°☾10'57	0°58'21	minimum elong	2570 Jul 22 05:59	0°♂02'31	0°30'53
max. Earth dist.	2562 Jul 03 20:18	12°☾11'29	30.91499 AU	max. Earth dist.	2570 Jul 22 05:52	0°♂02'31	30.99070 AU
retrograde	2562 Oct 17 19:02	14°☾43'20		retrograde	2570 Nov 04 15:56	2°♂13'37	
opposition	2563 Jan 04 00:35	13°☾19'02	-1°00'-40	opposition	2571 Jan 21 11:41	1°♂09'53	0°-31'-1
min. Earth dist.	2563 Jan 03 19:04	13°☾19'25	28.91837 AU	min. Earth dist.	2571 Jan 21 12:54	1°♂09'48	28.99620 AU
direct	2563 Mar 23 05:00	11°☾54'33			2571 Mar 10 23:50	30°♂☾	
				direct	2571 Apr 10 03:14	29°☾45'12	
conjunction	2563 Jul 06 04:37	14°☾25'16	0°-55'-9		2571 May 09 22:54	0°♂	
minimum elong	2563 Jul 06 04:37	14°☾25'16	0°55'09				
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retrograde	2563 Oct 20 04:59	16°☾57'29		minimum elong	2571 Jul 24 19:52	2°♂16'18	0°27'11
opposition	2564 Jan 06 11:12	15°☾33'12	0°-57'-13	max. Earth dist.	2571 Jul 24 18:01	2°♂16'08	31.00129 AU
min. Earth dist.	2564 Jan 06 07:18	15°☾33'29	28.92495 AU	retrograde	2571 Nov 07 04:24	4°♂47'13	
direct	2564 Mar 24 15:49	14°☾08'41		opposition	2572 Jan 23 22:01	3°♂23'34	0°-27'-3
				min. Earth dist.	2572 Jan 23 23:13	3°♂23'29	29.00623 AU
conjunction	2564 Jul 07 18:29	16°☾39'25	0°-51'-53	direct	2572 Apr 11 15:52	1°♂58'50	
minimum elong	2564 Jul 07 18:29	16°☾39'25	0°51'55				
max. Earth dist.	2564 Jul 07 23:07	16°☾39'51	30.92830 AU	conjunction	2572 Jul 26 09:37	4°♂29'58	0°-23'-27
retrograde	2564 Oct 21 16:51	19°☾11'27		minimum elong	2572 Jul 26 09:37	4°♂29'58	0°23'29
opposition	2565 Jan 07 21:36	17°☾47'13	0°-53'-41	max. Earth dist.	2572 Jul 26 06:44	4°♂29'42	31.01074 AU
min. Earth dist.	2565 Jan 07 17:26	17°☾47'31	28.93235 AU	retrograde	2572 Nov 08 14:51	7°♂00'42	
direct	2565 Mar 27 03:33	16°☾22'37		opposition	2573 Jan 25 08:27	5°♂37'06	0°-23'-3
				min. Earth dist.	2573 Jan 25 11:36	5°♂36'53	29.01521 AU
conjunction	2565 Jul 10 08:24	18°☾53'24	0°-48'-33	direct	2573 Apr 14 02:46	4°♂12'20	
minimum elong	2565 Jul 10 08:24	18°☾53'24	0°48'34				
max. Earth dist.	2565 Jul 10 11:43	18°☾53'42	30.93625 AU	conjunction	2573 Jul 28 23:28	6°♂43'28	0°-19'-42
retrograde	2565 Oct 24 03:39	21°☾25'16		minimum elong	2573 Jul 28 23:28	6°♂43'28	0°19'43




























































































































max. Earth dist.	2573 Jul 28 19:38	6°043'08	31.01934 AU	conjunction	2580 Aug 13 20:52	22°012'57	0°07'02
retrograde	2573 Nov 11 02:24	9°014'00		minimum elong	2580 Aug 13 20:52	22°012'57	0°07'02
opposition	2574 Jan 27 18:32	7°050'27	0°-19'-2	behind sun begin	2580 Aug 13 14:47	22°012'25	
min. Earth dist.	2574 Jan 27 21:51	7°050'13	29.02331 AU	behind sun end	2580 Aug 14 02:57	22°013'29	
direct	2574 Apr 16 14:54	6°025'37		max. Earth dist.	2580 Aug 13 11:42	22°012'07	31.08426 AU
				retrograde	2580 Nov 26 07:22	24°042'19	
conjunction	2574 Jul 31 13:11	8°056'46	0°-15'-55	opposition	2581 Feb 11 17:06	23°019'11	0°09'28
minimum elong	2574 Jul 31 13:11	8°056'46	0°15'57	min. Earth dist.	2581 Feb 12 00:33	23°018'40	29.09065 AU
max. Earth dist.	2574 Jul 31 07:45	8°056'17	31.02716 AU	direct	2581 May 02 02:26	21°054'11	
retrograde	2574 Nov 13 12:18	11°027'07					
opposition	2575 Jan 30 04:48	10°003'36	0°-14'-59	conjunction	2581 Aug 16 10:04	24°025'31	0°10'50
min. Earth dist.	2575 Jan 30 09:40	10°003'16	29.03104 AU	minimum elong	2581 Aug 16 10:04	24°025'31	0°10'50
direct	2575 Apr 19 01:16	8°038'42		behind sun begin	2581 Aug 16 05:06	24°025'04	
				behind sun end	2581 Aug 16 15:01	24°025'57	
conjunction	2575 Aug 03 02:42	11°009'51	0°-12'-8	max. Earth dist.	2581 Aug 16 00:21	24°024'37	31.09708 AU
minimum elong	2575 Aug 03 02:42	11°009'51	0°12'09	retrograde	2581 Nov 28 18:08	26°054'45	
behind sun begin	2575 Aug 02 22:20	11°009'28		opposition	2582 Feb 14 03:10	25°031'44	0°13'32
behind sun end	2575 Aug 03 07:03	11°010'15		min. Earth dist.	2582 Feb 14 12:21	25°031'05	29.10362 AU
max. Earth dist.	2575 Aug 02 21:20	11°009'23	31.03482 AU	direct	2582 May 04 13:01	24°006'45	
retrograde	2575 Nov 15 22:07	13°040'01					
opposition	2576 Feb 01 14:54	12°016'32	0°-10'-55	conjunction	2582 Aug 18 23:13	26°038'08	0°14'36
min. Earth dist.	2576 Feb 01 20:08	12°016'10	29.03868 AU	minimum elong	2582 Aug 18 23:13	26°038'08	0°14'36
direct	2576 Apr 20 14:17	10°051'35		behind sun begin	2582 Aug 18 20:38	26°037'54	
				behind sun end	2582 Aug 19 01:49	26°038'22	
conjunction	2576 Aug 04 16:03	13°022'44	0°-8'-20	max. Earth dist.	2582 Aug 18 12:46	26°037'11	31.10997 AU
minimum elong	2576 Aug 04 16:03	13°022'44	0°08'22	retrograde	2582 Dec 01 05:57	29°007'15	
behind sun begin	2576 Aug 04 10:16	13°022'13		opposition	2583 Feb 16 13:17	27°044'20	0°17'34
behind sun end	2576 Aug 04 21:49	13°023'15		min. Earth dist.	2583 Feb 16 22:29	27°043'41	29.11619 AU
max. Earth dist.	2576 Aug 04 08:50	13°022'05	31.04270 AU	direct	2583 May 07 00:51	26°019'23	
	2576 Sep 21 01:20	15°0					
retrograde	2576 Nov 17 09:39	15°052'43		conjunction	2583 Aug 21 12:08	28°050'47	0°18'22
	2577 Jan 15 10:35	15°0		minimum elong	2583 Aug 21 12:08	28°050'47	0°18'23
opposition	2577 Feb 03 00:54	14°029'16	0°-6'-50	max. Earth dist.	2583 Aug 21 00:15	28°049'42	31.12209 AU
min. Earth dist.	2577 Feb 03 06:44	14°028'51	29.04696 AU		2583 Sep 22 19:16	0°0	
direct	2577 Apr 23 01:17	13°004'15		retrograde	2583 Dec 03 15:20	1°019'47	
	2577 Jul 22 03:41	15°0			2584 Feb 17 04:07	30°0	
				opposition	2584 Feb 18 23:32	29°056'57	0°21'35
conjunction	2577 Aug 07 05:30	15°035'25	0°-4'-32	min. Earth dist.	2584 Feb 19 10:12	29°056'12	29.12799 AU
minimum elong	2577 Aug 07 05:30	15°035'25	0°04'33	direct	2584 May 08 11:07	28°032'00	
behind sun begin	2577 Aug 06 23:02	15°034'51			2584 Jul 24 15:03	0°0	
behind sun end	2577 Aug 07 11:57	15°036'00					
max. Earth dist.	2577 Aug 06 22:42	15°034'49	31.05131 AU	conjunction	2584 Aug 23 01:14	1°003'25	0°22'06
retrograde	2577 Nov 19 19:46	18°005'13		minimum elong	2584 Aug 23 01:14	1°003'25	0°22'05
opposition	2578 Feb 05 11:01	16°041'50	0°-2'-45	max. Earth dist.	2584 Aug 22 13:12	1°002'19	31.13331 AU
min. Earth dist.	2578 Feb 05 17:44	16°041'21	29.05602 AU	retrograde	2584 Dec 05 00:32	3°032'16	
direct	2578 Apr 25 13:16	15°016'47		opposition	2585 Feb 20 09:36	2°009'30	0°25'33
				min. Earth dist.	2585 Feb 20 20:56	2°008'42	29.13857 AU
conjunction	2578 Aug 09 18:39	17°047'58	0°00'-40	direct	2585 May 10 23:25	0°044'32	
minimum elong	2578 Aug 09 18:40	17°047'58	0°00'42				
behind sun begin	2578 Aug 09 12:05	17°047'24		conjunction	2585 Aug 25 14:10	3°015'57	0°25'48
behind sun end	2578 Aug 10 01:14	17°048'33		minimum elong	2585 Aug 25 14:10	3°015'57	0°25'48
max. Earth dist.	2578 Aug 09 10:13	17°047'13	31.06100 AU	max. Earth dist.	2585 Aug 25 00:01	3°014'39	31.14333 AU
asc. node	2578 Oct 12 12:28	19°049'58		retrograde	2585 Dec 07 11:42	5°044'39	
retrograde	2578 Nov 22 08:44	20°017'37		opposition	2586 Feb 22 19:46	4°021'55	0°29'29
opposition	2579 Feb 07 20:59	18°054'17	0°01'19	min. Earth dist.	2586 Feb 23 07:50	4°021'05	29.14814 AU
min. Earth dist.	2579 Feb 08 03:32	18°053'49	29.06639 AU	direct	2586 May 13 09:41	2°056'55	
direct	2579 Apr 28 02:03	17°029'14					
				conjunction	2586 Aug 28 03:05	5°028'19	0°29'28
conjunction	2579 Aug 12 07:55	20°000'28	0°03'14	minimum elong	2586 Aug 28 03:05	5°028'19	0°29'27
minimum elong	2579 Aug 12 07:55	20°000'28	0°03'14	max. Earth dist.	2586 Aug 27 13:07	5°027'02	31.15232 AU
behind sun begin	2579 Aug 12 01:21	19°059'53		retrograde	2586 Dec 09 20:49	7°056'51	
behind sun end	2579 Aug 12 14:28	20°001'02		opposition	2587 Feb 25 05:59	6°034'09	0°33'22
max. Earth dist.	2579 Aug 11 23:52	19°059'44	31.07198 AU	min. Earth dist.	2587 Feb 25 19:15	6°033'14	29.15669 AU
retrograde	2579 Nov 24 19:12	22°029'58		direct	2587 May 15 21:44	5°009'07	
opposition	2580 Feb 10 07:08	21°006'43	0°05'24				
min. Earth dist.	2580 Feb 10 15:00	21°006'10	29.07802 AU	conjunction	2587 Aug 30 15:42	7°040'29	0°33'04
direct	2580 Apr 29 14:03	19°041'41		minimum elong	2587 Aug 30 15:41	7°040'29	0°33'05

max. Earth dist.	2587 Aug 29 23:52	7° \mathring{M} 39'02	31.16063 AU	min. Earth dist.	2596 Mar 16 18:57	26° \mathring{M} 16'23	29.24627 AU
retrograde	2587 Dec 12 08:38	10° \mathring{M} 08'51		direct	2596 Jun 04 06:57	24° \mathring{M} 52'37	
opposition	2588 Feb 27 16:00	8° \mathring{M} 46'10	0°37'12	max. Earth dist.	2596 Sep 18 09:19	27° \mathring{M} 22'04	31.25065 AU
min. Earth dist.	2588 Feb 28 05:15	8° \mathring{M} 45'14	29.16487 AU				
direct	2588 May 17 10:40	7° \mathring{M} 21'04		conjunction	2596 Sep 19 05:24	27° \mathring{M} 23'55	1°02'43
				minimum elong	2596 Sep 19 05:24	27° \mathring{M} 23'55	1°02'42
conjunction	2588 Sep 01 04:15	9° \mathring{M} 52'25	0°36'38	retrograde	2596 Dec 31 05:10	29° \mathring{M} 51'16	
minimum elong	2588 Sep 01 04:15	9° \mathring{M} 52'25	0°36'38	opposition	2597 Mar 18 11:48	28° \mathring{M} 29'08	1°08'31
max. Earth dist.	2588 Aug 31 12:44	9° \mathring{M} 50'59	31.16860 AU	min. Earth dist.	2597 Mar 19 05:14	28° \mathring{M} 27'55	29.25574 AU
retrograde	2588 Dec 13 18:01	12° \mathring{M} 20'36		direct	2597 Jun 06 19:11	27° \mathring{M} 04'10	
opposition	2589 Mar 01 02:12	10° \mathring{M} 57'56	0°40'59				
min. Earth dist.	2589 Mar 01 16:57	10° \mathring{M} 56'54	29.17287 AU	conjunction	2597 Sep 21 17:29	29° \mathring{M} 35'28	1°05'36
direct	2589 May 19 22:54	9° \mathring{M} 32'49		minimum elong	2597 Sep 21 17:28	29° \mathring{M} 35'28	1°05'36
				max. Earth dist.	2597 Sep 20 21:33	29° \mathring{M} 33'38	31.25926 AU
conjunction	2589 Sep 03 16:40	12° \mathring{M} 04'06	0°40'08		2597 Oct 02 19:02	0° \mathring{M}	
minimum elong	2589 Sep 03 16:39	12° \mathring{M} 04'06	0°40'08	retrograde	2598 Jan 02 14:36	2° \mathring{M} 02'44	
max. Earth dist.	2589 Sep 03 00:02	12° \mathring{M} 02'34	31.17676 AU	opposition	2598 Mar 20 22:18	0° \mathring{M} 40'38	1°11'33
retrograde	2589 Dec 16 05:32	14° \mathring{M} 32'08		min. Earth dist.	2598 Mar 21 17:23	0° \mathring{M} 39'19	29.26368 AU
opposition	2590 Mar 03 12:08	13° \mathring{M} 09'29	0°44'41		2598 Apr 15 09:07	30° \mathring{R} \mathring{M}	
min. Earth dist.	2590 Mar 04 02:19	13° \mathring{M} 08'30	29.18127 AU	direct	2598 Jun 09 06:49	29° \mathring{M} 15'41	
direct	2590 May 22 11:50	11° \mathring{M} 44'19			2598 Aug 01 19:02	0° \mathring{M}	
				max. Earth dist.	2598 Sep 23 08:08	1° \mathring{M} 45'01	31.26654 AU
conjunction	2590 Sep 06 05:01	14° \mathring{M} 15'36	0°43'34				
minimum elong	2590 Sep 06 05:01	14° \mathring{M} 15'36	0°43'34	conjunction	2598 Sep 24 05:18	1° \mathring{M} 46'58	1°08'24
max. Earth dist.	2590 Sep 05 12:15	14° \mathring{M} 14'03	31.18544 AU	minimum elong	2598 Sep 24 05:17	1° \mathring{M} 46'58	1°08'23
retrograde	2590 Dec 18 15:56	16° \mathring{M} 43'28		retrograde	2599 Jan 05 02:12	4° \mathring{M} 14'08	
opposition	2591 Mar 05 22:23	15° \mathring{M} 20'51	0°48'20	opposition	2599 Mar 23 08:44	2° \mathring{M} 52'04	1°14'29
min. Earth dist.	2591 Mar 06 13:45	15° \mathring{M} 19'47	29.19056 AU	min. Earth dist.	2599 Mar 24 03:21	2° \mathring{M} 50'47	29.27029 AU
direct	2591 May 24 23:22	13° \mathring{M} 55'41		direct	2599 Jun 11 19:48	1° \mathring{M} 27'07	
conjunction	2591 Sep 08 17:05	16° \mathring{M} 26'56	0°46'57	conjunction	2599 Sep 26 16:55	3° \mathring{M} 58'22	1°11'05
minimum elong	2591 Sep 08 17:05	16° \mathring{M} 26'56	0°46'57	minimum elong	2599 Sep 26 16:55	3° \mathring{M} 58'22	1°11'05
max. Earth dist.	2591 Sep 08 00:11	16° \mathring{M} 25'22	31.19528 AU	max. Earth dist.	2599 Sep 25 19:26	3° \mathring{M} 56'23	31.27244 AU
retrograde	2591 Dec 21 02:42	18° \mathring{M} 54'40		retrograde	2600 Jan 07 12:54	6° \mathring{M} 25'26	
opposition	2592 Mar 07 08:30	17° \mathring{M} 32'08	0°51'54	opposition	2600 Mar 25 19:16	5° \mathring{M} 03'22	1°17'19
min. Earth dist.	2592 Mar 07 23:19	17° \mathring{M} 31'05	29.20089 AU	min. Earth dist.	2600 Mar 26 15:19	5° \mathring{M} 01'59	29.27577 AU
direct	2592 May 26 12:06	16° \mathring{M} 06'58		direct	2600 Jun 14 08:01	3° \mathring{M} 38'25	
max. Earth dist.	2592 Sep 09 11:31	18° \mathring{M} 36'35	31.20610 AU	max. Earth dist.	2600 Sep 28 06:42	6° \mathring{M} 07'36	31.27749 AU
conjunction	2592 Sep 10 05:13	18° \mathring{M} 38'13	0°50'16	conjunction	2600 Sep 29 04:31	6° \mathring{M} 09'37	1°13'41
minimum elong	2592 Sep 10 05:13	18° \mathring{M} 38'13	0°50'15	minimum elong	2600 Sep 29 04:31	6° \mathring{M} 09'37	1°13'40
retrograde	2592 Dec 22 12:09	21° \mathring{M} 05'51					
opposition	2593 Mar 09 18:34	19° \mathring{M} 43'23	0°55'24				
min. Earth dist.	2593 Mar 10 10:18	19° \mathring{M} 42'17	29.21227 AU				
direct	2593 May 28 22:08	18° \mathring{M} 18'15					
conjunction	2593 Sep 12 17:27	20° \mathring{M} 49'31	0°53'30				
minimum elong	2593 Sep 12 17:26	20° \mathring{M} 49'31	0°53'30				
max. Earth dist.	2593 Sep 12 00:12	20° \mathring{M} 47'56	31.21776 AU				
retrograde	2593 Dec 24 21:15	23° \mathring{M} 17'04					
opposition	2594 Mar 12 04:48	21° \mathring{M} 54'42	0°58'49				
min. Earth dist.	2594 Mar 12 20:48	21° \mathring{M} 53'35	29.22398 AU				
direct	2594 May 31 09:58	20° \mathring{M} 29'38					
max. Earth dist.	2594 Sep 14 10:38	22° \mathring{M} 59'11	31.22941 AU				
conjunction	2594 Sep 15 05:23	23° \mathring{M} 00'55	0°56'39				
minimum elong	2594 Sep 15 05:23	23° \mathring{M} 00'55	0°56'39				
retrograde	2594 Dec 27 08:21	25° \mathring{M} 28'24					
opposition	2595 Mar 14 15:04	24° \mathring{M} 06'07	1°02'08				
min. Earth dist.	2595 Mar 15 07:24	24° \mathring{M} 04'59	29.23558 AU				
direct	2595 Jun 02 19:30	22° \mathring{M} 41'05					
conjunction	2595 Sep 17 17:31	25° \mathring{M} 12'23	0°59'43				
minimum elong	2595 Sep 17 17:31	25° \mathring{M} 12'23	0°59'44				
max. Earth dist.	2595 Sep 16 23:13	25° \mathring{M} 10'42	31.24056 AU				
retrograde	2595 Dec 29 17:22	27° \mathring{M} 39'48					
opposition	2596 Mar 16 01:26	26° \mathring{M} 17'36	1°05'23				

retrograde	2600 Jan 07 12:54	6° 25 '26		opposition	2608 Apr 12 07:38	22° 29 '22	1°35'32
opposition	2600 Mar 25 19:16	5° 03 '22	1°17'19	min. Earth dist.	2608 Apr 13 03:47	22° 27 '59	29.32316 AU
min. Earth dist.	2600 Mar 26 15:19	5° 01 '59	29.27577 AU	direct	2608 Jul 02 04:15	21° 04 '31	
direct	2600 Jun 14 08:01	3° 38 '25					
max. Earth dist.	2600 Sep 28 06:42	6° 07 '36	31.27749 AU	conjunction	2608 Oct 16 21:02	23° 35 '24	1°30'16
				minimum elong	2608 Oct 16 21:02	23° 35 '24	1°30'15
conjunction	2600 Sep 29 04:31	6° 09 '37	1°13'41	max. Earth dist.	2608 Oct 15 22:31	23° 33 '19	31.32518 AU
minimum elong	2600 Sep 29 04:31	6° 09 '37	1°13'40	retrograde	2609 Jan 27 05:11	26° 01 '54	
retrograde	2601 Jan 09 23:20	8° 36 '34		opposition	2609 Apr 14 18:27	24° 40 '04	1°37'13
opposition	2601 Mar 28 05:33	7° 14 '31	1°20'01	min. Earth dist.	2609 Apr 15 15:49	24° 38 '36	29.32894 AU
min. Earth dist.	2601 Mar 29 01:19	7° 13 '09	29.28042 AU	direct	2609 Jul 04 16:03	23° 15 '15	
direct	2601 Jun 16 21:44	5° 49 '31		max. Earth dist.	2609 Oct 18 09:20	25° 44 '00	31.33032 AU
conjunction	2601 Oct 01 15:59	8° 20 '41	1°16'10	conjunction	2609 Oct 19 07:56	25° 46 '06	1°31'46
minimum elong	2601 Oct 01 15:58	8° 20 '41	1°16'10	minimum elong	2609 Oct 19 07:56	25° 46 '06	1°31'46
max. Earth dist.	2601 Sep 30 17:21	8° 18 '35	31.28190 AU	retrograde	2610 Jan 29 15:39	28° 12 '34	
retrograde	2602 Jan 12 08:22	10° 47 '31		opposition	2610 Apr 17 05:23	26° 50 '45	1°38'46
opposition	2602 Mar 30 16:04	9° 25 '28	1°22'37	min. Earth dist.	2610 Apr 18 02:21	26° 49 '19	29.33332 AU
min. Earth dist.	2602 Mar 31 12:34	9° 24 '03	29.28493 AU	direct	2610 Jul 07 05:43	25° 25 '58	
direct	2602 Jun 19 08:29	8° 00 '27					
max. Earth dist.	2602 Oct 03 05:24	10° 29 '32	31.28644 AU	conjunction	2610 Oct 21 18:35	27° 56 '46	1°33'09
				minimum elong	2610 Oct 21 18:35	27° 56 '46	1°33'09
conjunction	2602 Oct 04 03:12	10° 31 '33	1°18'32	max. Earth dist.	2610 Oct 20 19:11	27° 54 '36	31.33395 AU
minimum elong	2602 Oct 04 03:11	10° 31 '33	1°18'32		2610 Dec 25 22:55	0° 00 '00	
retrograde	2603 Jan 14 16:37	12° 58 '17		retrograde	2611 Feb 01 01:38	0° 23 '13	
opposition	2603 Apr 02 02:36	11° 36 '15	1°25'05		2611 Mar 11 01:04	30° 00 '00	
min. Earth dist.	2603 Apr 02 23:00	11° 34 '50	29.28967 AU	opposition	2611 Apr 19 16:26	29° 01 '24	1°40'10
direct	2603 Jun 21 21:06	10° 11 '13		min. Earth dist.	2611 Apr 20 14:02	28° 59 '55	29.33639 AU
				direct	2611 Jul 09 16:36	27° 36 '37	
conjunction	2603 Oct 06 14:15	12° 42 '15	1°20'47		2611 Oct 20 22:11	0° 00 '00	
minimum elong	2603 Oct 06 14:15	12° 42 '15	1°20'47	max. Earth dist.	2611 Oct 23 06:40	0° 05 '16	31.33630 AU
max. Earth dist.	2603 Oct 05 15:28	12° 40 '08	31.29155 AU				
retrograde	2604 Jan 17 03:10	15° 08 '55		conjunction	2611 Oct 24 05:21	0° 07 '22	1°34'24
opposition	2604 Apr 03 13:01	13° 46 '53	1°27'26	minimum elong	2611 Oct 24 05:21	0° 07 '22	1°34'25
min. Earth dist.	2604 Apr 04 09:04	13° 45 '30	29.29538 AU	retrograde	2612 Feb 03 10:19	2° 33 '45	
direct	2604 Jun 23 06:49	12° 21 '52		opposition	2612 Apr 21 03:19	1° 11 '56	1°41'26
max. Earth dist.	2604 Oct 07 03:43	14° 50 '51	31.29764 AU	min. Earth dist.	2612 Apr 22 01:07	1° 10 '27	29.33804 AU
					2612 Jun 12 10:04	30° 00 '00	
conjunction	2604 Oct 08 01:24	14° 52 '51	1°22'56	direct	2612 Jul 11 05:50	29° 47 '10	
minimum elong	2604 Oct 08 01:24	14° 52 '51	1°22'55		2612 Aug 08 12:37	0° 00 '00	
retrograde	2605 Jan 18 10:57	17° 19 '28					
opposition	2605 Apr 05 23:38	15° 57 '28	1°29'39	conjunction	2612 Oct 25 15:53	2° 17 '51	1°35'31
min. Earth dist.	2605 Apr 06 20:14	15° 56 '03	29.30187 AU	minimum elong	2612 Oct 25 15:53	2° 17 '51	1°35'31
direct	2605 Jun 25 18:31	14° 32 '29		max. Earth dist.	2612 Oct 24 16:00	2° 15 '38	31.33740 AU
				retrograde	2613 Feb 04 21:00	4° 44 '12	
conjunction	2605 Oct 10 12:19	17° 03 '26	1°24'57	opposition	2613 Apr 23 14:17	3° 22 '22	1°42'33
minimum elong	2605 Oct 10 12:19	17° 03 '26	1°24'57	min. Earth dist.	2613 Apr 24 11:50	3° 20 '53	29.33870 AU
max. Earth dist.	2605 Oct 09 13:39	17° 01 '20	31.30456 AU	direct	2613 Jul 13 16:30	1° 57 '35	
retrograde	2606 Jan 20 21:38	19° 30 '00		max. Earth dist.	2613 Oct 27 03:36	4° 26 '04	31.33761 AU
opposition	2606 Apr 08 10:09	18° 08 '03	1°31'45				
min. Earth dist.	2606 Apr 09 05:58	18° 06 '41	29.30907 AU	conjunction	2613 Oct 28 02:24	4° 28 '11	1°36'30
direct	2606 Jun 28 05:24	16° 43 '06		minimum elong	2613 Oct 28 02:24	4° 28 '11	1°36'30
				retrograde	2614 Feb 07 04:34	6° 54 '31	
conjunction	2606 Oct 12 23:21	19° 14 '03	1°26'51	opposition	2614 Apr 26 01:23	5° 32 '39	1°43'32
minimum elong	2606 Oct 12 23:21	19° 14 '03	1°26'51	min. Earth dist.	2614 Apr 26 23:31	5° 31 '08	29.33866 AU
max. Earth dist.	2606 Oct 12 01:34	19° 12 '01	31.31182 AU	direct	2614 Jul 16 04:40	4° 07 '51	
retrograde	2607 Jan 23 06:55	21° 40 '36					
opposition	2607 Apr 10 20:57	20° 18 '41	1°33'42	conjunction	2614 Oct 30 12:36	6° 38 '23	1°37'21
min. Earth dist.	2607 Apr 11 17:54	20° 17 '15	29.31637 AU	minimum elong	2614 Oct 30 12:36	6° 38 '23	1°37'21
direct	2607 Jun 30 15:34	18° 53 '47		max. Earth dist.	2614 Oct 29 13:05	6° 36 '12	31.33759 AU
max. Earth dist.	2607 Oct 14 11:43	21° 22 '37	31.31897 AU	retrograde	2615 Feb 09 14:50	9° 04 '41	
				opposition	2615 Apr 28 12:22	7° 42 '47	1°44'22
conjunction	2607 Oct 15 10:05	21° 24 '42	1°28'37	min. Earth dist.	2615 Apr 29 09:23	7° 41 '21	29.33880 AU
minimum elong	2607 Oct 15 10:05	21° 24 '42	1°28'37	direct	2615 Jul 18 15:26	6° 17 '59	
retrograde	2608 Jan 25 18:17	23° 51 '14					

conjunction	2615 Nov 01 22:44	8° M 48'27	1°38'03	direct	2623 Aug 05 12:55	23° M 40'46	
minimum elong	2615 Nov 01 22:44	8° M 48'27	1°38'03	max. Earth dist.	2623 Nov 18 09:48	26° M 09'00	31.35202 AU
max. Earth dist.	2615 Nov 01 00:26	8° M 46'23	31.33788 AU				
retrograde	2616 Feb 11 23:43	11° M 14'45		conjunction	2623 Nov 19 06:18	26° M 10'55	1°38'37
opposition	2616 Apr 29 23:32	9° M 52'50	1°45'03	minimum elong	2623 Nov 19 06:18	26° M 10'55	1°38'37
min. Earth dist.	2616 Apr 30 21:10	9° M 51'21	29.33951 AU	retrograde	2624 Feb 29 10:09	28° M 37'32	
direct	2616 Jul 20 01:18	8° M 28'03		opposition	2624 May 17 18:36	27° M 15'44	1°45'03
max. Earth dist.	2616 Nov 02 10:33	10° M 56'23	31.33909 AU	min. Earth dist.	2624 May 18 13:13	27° M 14'28	29.35220 AU
				direct	2624 Aug 06 23:49	25° M 51'22	
conjunction	2616 Nov 03 08:48	10° M 58'28	1°38'37				
minimum elong	2616 Nov 03 08:48	10° M 58'28	1°38'37	conjunction	2624 Nov 20 16:14	28° M 21'27	1°38'03
retrograde	2617 Feb 13 10:34	13° M 24'46		minimum elong	2624 Nov 20 16:14	28° M 21'27	1°38'03
opposition	2617 May 02 10:28	12° M 02'51	1°45'35	max. Earth dist.	2624 Nov 19 20:32	28° M 19'36	31.34983 AU
min. Earth dist.	2617 May 03 06:37	12° M 01'29	29.34115 AU		2625 Jan 07 14:19	0° ♂	
direct	2617 Jul 22 13:44	10° M 38'07		retrograde	2625 Mar 02 19:18	0° ♂ 48'05	
					2625 Apr 28 21:43	30° R M	
conjunction	2617 Nov 05 18:52	13° M 08'30	1°39'03	opposition	2625 May 20 06:20	29° M 26'15	1°44'23
minimum elong	2617 Nov 05 18:53	13° M 08'30	1°39'03	min. Earth dist.	2625 May 21 01:51	29° M 24'55	29.34937 AU
max. Earth dist.	2617 Nov 04 21:08	13° M 06'28	31.34120 AU	direct	2625 Aug 09 10:02	28° M 01'53	
	2618 Jan 01 03:16	15° M			2625 Nov 08 19:14	0° ♂	
retrograde	2618 Feb 15 21:53	15° M 34'50		max. Earth dist.	2625 Nov 22 06:19	0° ♂ 30'02	31.34655 AU
	2618 Apr 04 07:56	15° R M					
opposition	2618 May 04 21:46	14° M 12'57	1°45'57	conjunction	2625 Nov 23 01:58	0° ♂ 31'52	1°37'21
min. Earth dist.	2618 May 05 18:19	14° M 11'32	29.34376 AU	minimum elong	2625 Nov 23 01:58	0° ♂ 31'52	1°37'21
direct	2618 Jul 25 00:54	12° M 48'16		retrograde	2626 Mar 05 05:49	2° ♂ 58'32	
	2618 Oct 30 20:49	15° M		opposition	2626 May 22 18:05	1° ♂ 36'38	1°43'34
max. Earth dist.	2618 Nov 07 07:50	15° M 16'40	31.34418 AU	min. Earth dist.	2626 May 23 12:12	1° ♂ 35'24	29.34554 AU
				direct	2626 Aug 11 22:46	0° ♂ 12'16	
conjunction	2618 Nov 08 04:44	15° M 18'37	1°39'20				
minimum elong	2618 Nov 08 04:44	15° M 18'37	1°39'20	conjunction	2626 Nov 25 11:29	2° ♂ 42'08	1°36'31
retrograde	2619 Feb 18 08:23	17° M 45'00		minimum elong	2626 Nov 25 11:29	2° ♂ 42'08	1°36'31
opposition	2619 May 07 09:01	16° M 23'09	1°46'11	max. Earth dist.	2626 Nov 24 16:14	2° ♂ 40'20	31.34241 AU
min. Earth dist.	2619 May 08 04:34	16° M 21'49	29.34680 AU	retrograde	2627 Mar 07 16:43	5° ♂ 08'50	
	2619 Jul 18 01:05	15° R M		opposition	2627 May 25 05:57	3° ♂ 46'51	1°42'36
direct	2619 Jul 27 13:49	14° M 58'33		min. Earth dist.	2627 May 26 00:26	3° ♂ 45'36	29.34133 AU
	2619 Aug 06 00:54	15° M		direct	2627 Aug 14 09:30	2° ♂ 22'29	
conjunction	2619 Nov 10 14:39	17° M 28'53	1°39'28				
minimum elong	2619 Nov 10 14:39	17° M 28'53	1°39'29	conjunction	2627 Nov 27 21:03	4° ♂ 52'16	1°35'33
max. Earth dist.	2619 Nov 09 17:26	17° M 26'54	31.34728 AU	minimum elong	2627 Nov 27 21:03	4° ♂ 52'16	1°35'32
retrograde	2620 Feb 20 19:00	19° M 55'19		max. Earth dist.	2627 Nov 27 02:54	4° ♂ 50'34	31.33826 AU
opposition	2620 May 08 20:13	18° M 33'30	1°46'16	retrograde	2628 Mar 09 02:42	7° ♂ 18'59	
min. Earth dist.	2620 May 09 15:58	18° M 32'09	29.34989 AU	opposition	2628 May 26 17:35	5° ♂ 56'57	1°41'29
direct	2620 Jul 29 00:09	17° M 08'58		min. Earth dist.	2628 May 27 10:50	5° ♂ 55'47	29.33724 AU
max. Earth dist.	2620 Nov 11 04:40	19° M 37'25	31.35008 AU	direct	2628 Aug 15 22:11	4° ♂ 32'35	
conjunction	2620 Nov 12 00:41	19° M 39'17	1°39'28	conjunction	2628 Nov 29 06:31	7° ♂ 02'17	1°34'26
minimum elong	2620 Nov 12 00:41	19° M 39'17	1°39'28	minimum elong	2628 Nov 29 06:31	7° ♂ 02'17	1°34'26
retrograde	2621 Feb 22 04:34	22° M 05'45		max. Earth dist.	2628 Nov 28 12:19	7° ♂ 00'35	31.33450 AU
opposition	2621 May 11 07:44	20° M 43'58	1°46'11	retrograde	2629 Mar 11 13:54	9° ♂ 29'03	
min. Earth dist.	2621 May 12 03:22	20° M 42'38	29.35222 AU	opposition	2629 May 29 05:29	8° ♂ 06'59	1°40'14
direct	2621 Jul 31 13:49	19° M 19'30		min. Earth dist.	2629 May 29 22:16	8° ♂ 05'50	29.33395 AU
				direct	2629 Aug 18 09:04	6° ♂ 42'38	
conjunction	2621 Nov 14 10:30	21° M 49'47	1°39'20				
minimum elong	2621 Nov 14 10:30	21° M 49'47	1°39'20	conjunction	2629 Dec 01 15:57	9° ♂ 12'17	1°33'11
max. Earth dist.	2621 Nov 13 13:38	21° M 47'50	31.35195 AU	minimum elong	2629 Dec 01 15:57	9° ♂ 12'17	1°33'12
retrograde	2622 Feb 24 16:04	24° M 16'19		max. Earth dist.	2629 Nov 30 23:37	9° ♂ 10'45	31.33162 AU
opposition	2622 May 13 19:17	22° M 54'32	1°45'57	retrograde	2630 Mar 13 23:44	11° ♂ 39'07	
min. Earth dist.	2622 May 14 14:19	22° M 53'14	29.35360 AU	opposition	2630 May 31 17:28	10° ♂ 17'02	1°38'50
direct	2622 Aug 03 00:50	21° M 30'07		min. Earth dist.	2630 Jun 01 09:29	10° ♂ 15'57	29.33138 AU
				direct	2630 Aug 20 22:37	8° ♂ 52'45	
conjunction	2622 Nov 16 20:32	24° M 00'21	1°39'03	max. Earth dist.	2630 Dec 03 08:40	11° ♂ 20'47	31.32954 AU
minimum elong	2622 Nov 16 20:32	24° M 00'21	1°39'03				
max. Earth dist.	2622 Nov 16 00:48	23° M 58'30	31.35265 AU	conjunction	2630 Dec 04 01:16	11° ♂ 22'21	1°31'49
retrograde	2623 Feb 26 23:52	26° M 26'55		minimum elong	2630 Dec 04 01:16	11° ♂ 22'21	1°31'49
opposition	2623 May 16 07:00	25° M 05'09	1°45'35	retrograde	2631 Mar 16 11:37	13° ♂ 49'17	
min. Earth dist.	2623 May 17 02:37	25° M 03'49	29.35360 AU	opposition	2631 Jun 03 05:19	12° ♂ 27'12	1°37'17
				min. Earth dist.	2631 Jun 03 20:10	12° ♂ 26'11	29.32960 AU

direct	2631 Aug 23 09:23	11° $\overline{2}$ 02'59		2639 Nov 26 22:14	0° $\overline{3}$	
conjunction	2631 Dec 06 10:43	13° $\overline{2}$ 32'33	1°30'18	conjunction	2639 Dec 23 13:55	0° $\overline{3}$ 58'41 1°13'44
minimum elong	2631 Dec 06 10:43	13° $\overline{2}$ 32'33	1°30'18	minimum elong	2639 Dec 23 13:56	0° $\overline{3}$ 58'41 1°13'44
max. Earth dist.	2631 Dec 05 19:46	13° $\overline{2}$ 31'09	31.32787 AU	max. Earth dist.	2639 Dec 23 02:16	0° $\overline{3}$ 57'35 31.28286 AU
retrograde	2632 Mar 17 20:13	15° $\overline{2}$ 59'36		retrograde	2640 Apr 04 13:48	3° $\overline{3}$ 26'36
opposition	2632 Jun 04 17:25	14° $\overline{2}$ 37'31	1°35'36	opposition	2640 Jun 22 20:18	2° $\overline{3}$ 04'12 1°17'25
min. Earth dist.	2632 Jun 05 08:24	14° $\overline{2}$ 36'30	29.32784 AU	min. Earth dist.	2640 Jun 23 06:24	2° $\overline{3}$ 03'31 29.27870 AU
direct	2632 Aug 24 21:20	13° $\overline{2}$ 13'23		direct	2640 Sep 11 16:38	0° $\overline{3}$ 40'18
conjunction	2632 Dec 07 20:02	15° $\overline{2}$ 42'56	1°28'39	conjunction	2640 Dec 24 23:11	3° $\overline{3}$ 09'23 1°11'10
minimum elong	2632 Dec 07 20:02	15° $\overline{2}$ 42'56	1°28'39	minimum elong	2640 Dec 24 23:11	3° $\overline{3}$ 09'23 1°11'10
max. Earth dist.	2632 Dec 07 04:52	15° $\overline{2}$ 41'30	31.32609 AU	max. Earth dist.	2640 Dec 24 13:22	3° $\overline{3}$ 08'27 31.27353 AU
retrograde	2633 Mar 20 07:09	18° $\overline{2}$ 10'06		retrograde	2641 Apr 06 22:28	5° $\overline{3}$ 37'24
opposition	2633 Jun 07 05:26	16° $\overline{2}$ 48'02	1°33'46	opposition	2641 Jun 25 08:53	4° $\overline{3}$ 14'55 1°14'37
min. Earth dist.	2633 Jun 07 19:00	16° $\overline{2}$ 47'07	29.32577 AU	min. Earth dist.	2641 Jun 25 18:43	4° $\overline{3}$ 14'15 29.26964 AU
direct	2633 Aug 27 08:08	15° $\overline{2}$ 23'58		direct	2641 Sep 14 05:28	2° $\overline{3}$ 51'02
conjunction	2633 Dec 10 05:33	17° $\overline{2}$ 53'30	1°26'53	conjunction	2641 Dec 27 08:21	5° $\overline{3}$ 20'02 1°08'30
minimum elong	2633 Dec 10 05:33	17° $\overline{2}$ 53'30	1°26'53	minimum elong	2641 Dec 27 08:21	5° $\overline{3}$ 20'02 1°08'29
max. Earth dist.	2633 Dec 09 15:29	17° $\overline{2}$ 52'10	31.32363 AU	max. Earth dist.	2641 Dec 26 22:51	5° $\overline{3}$ 19'08 31.26504 AU
retrograde	2634 Mar 22 17:14	20° $\overline{2}$ 20'48		retrograde	2642 Apr 09 09:42	7° $\overline{3}$ 48'10
opposition	2634 Jun 09 17:50	18° $\overline{2}$ 58'44	1°31'49	opposition	2642 Jun 27 21:22	6° $\overline{3}$ 25'37 1°11'42
min. Earth dist.	2634 Jun 10 07:59	18° $\overline{2}$ 57'47	29.32288 AU	min. Earth dist.	2642 Jun 28 05:11	6° $\overline{3}$ 25'05 29.26159 AU
direct	2634 Aug 29 18:02	17° $\overline{2}$ 34'45		direct	2642 Sep 16 17:20	5° $\overline{3}$ 01'45
conjunction	2634 Dec 12 14:53	20° $\overline{2}$ 04'13	1°24'59	conjunction	2642 Dec 29 17:31	7° $\overline{3}$ 30'42 1°05'43
minimum elong	2634 Dec 12 14:53	20° $\overline{2}$ 04'13	1°24'58	minimum elong	2642 Dec 29 17:31	7° $\overline{3}$ 30'42 1°05'43
max. Earth dist.	2634 Dec 12 01:10	20° $\overline{2}$ 02'56	31.32027 AU	max. Earth dist.	2642 Dec 29 09:28	7° $\overline{3}$ 29'56 31.25742 AU
retrograde	2635 Mar 25 04:19	22° $\overline{2}$ 31'39		retrograde	2643 Apr 11 19:53	9° $\overline{3}$ 58'58
opposition	2635 Jun 12 06:06	21° $\overline{2}$ 09'35	1°29'43	opposition	2643 Jun 30 10:02	8° $\overline{3}$ 36'22 1°08'41
min. Earth dist.	2635 Jun 12 18:48	21° $\overline{2}$ 08'43	29.31876 AU	min. Earth dist.	2643 Jun 30 17:55	8° $\overline{3}$ 35'50 29.25438 AU
direct	2635 Sep 01 06:11	19° $\overline{2}$ 45'39		direct	2643 Sep 19 04:06	7° $\overline{3}$ 12'33
max. Earth dist.	2635 Dec 14 10:45	22° $\overline{2}$ 13'48	31.31540 AU	conjunction	2644 Jan 01 02:45	9° $\overline{3}$ 41'27 1°02'51
conjunction	2635 Dec 15 00:24	22° $\overline{2}$ 15'05	1°22'58	minimum elong	2644 Jan 01 02:45	9° $\overline{3}$ 41'27 1°02'51
minimum elong	2635 Dec 15 00:24	22° $\overline{2}$ 15'05	1°22'57	max. Earth dist.	2643 Dec 31 19:40	9° $\overline{3}$ 40'46 31.25066 AU
retrograde	2636 Mar 26 16:07	24° $\overline{2}$ 42'39		retrograde	2644 Apr 13 06:19	12° $\overline{3}$ 09'51
opposition	2636 Jun 13 18:26	23° $\overline{2}$ 20'32	1°27'30	opposition	2644 Jul 01 22:26	10° $\overline{3}$ 47'13 1°05'34
min. Earth dist.	2636 Jun 14 07:38	23° $\overline{2}$ 19'39	29.31318 AU	min. Earth dist.	2644 Jul 02 04:24	10° $\overline{3}$ 46'49 29.24773 AU
direct	2636 Sep 02 16:02	21° $\overline{2}$ 56'38		direct	2644 Sep 20 15:42	9° $\overline{3}$ 23'27
conjunction	2636 Dec 16 09:58	24° $\overline{2}$ 26'02	1°20'49	conjunction	2645 Jan 02 12:00	11° $\overline{3}$ 52'19 0°59'53
minimum elong	2636 Dec 16 09:58	24° $\overline{2}$ 26'02	1°20'49	minimum elong	2645 Jan 02 12:00	11° $\overline{3}$ 52'19 0°59'53
max. Earth dist.	2636 Dec 15 21:16	24° $\overline{2}$ 24'50	31.30910 AU	max. Earth dist.	2645 Jan 02 05:24	11° $\overline{3}$ 51'41 31.24419 AU
retrograde	2637 Mar 29 02:48	26° $\overline{2}$ 53'41		retrograde	2645 Apr 15 17:56	14° $\overline{3}$ 20'53
opposition	2637 Jun 16 06:53	25° $\overline{2}$ 31'32	1°25'09	opposition	2645 Jul 04 11:15	12° $\overline{3}$ 58'13 1°02'21
min. Earth dist.	2637 Jun 16 19:03	25° $\overline{2}$ 30'43	29.30596 AU	min. Earth dist.	2645 Jul 04 17:12	12° $\overline{3}$ 57'49 29.24135 AU
direct	2637 Sep 05 04:13	24° $\overline{2}$ 07'40		direct	2645 Sep 23 00:58	11° $\overline{3}$ 34'31
conjunction	2637 Dec 18 19:16	26° $\overline{2}$ 36'59	1°18'34	conjunction	2646 Jan 04 21:16	14° $\overline{3}$ 03'20 0°56'49
minimum elong	2637 Dec 18 19:17	26° $\overline{2}$ 36'59	1°18'34	minimum elong	2646 Jan 04 21:16	14° $\overline{3}$ 03'20 0°56'49
max. Earth dist.	2637 Dec 18 06:13	26° $\overline{2}$ 35'45	31.30123 AU	max. Earth dist.	2646 Jan 04 16:14	14° $\overline{3}$ 02'51 31.23779 AU
retrograde	2638 Mar 31 14:57	29° $\overline{2}$ 04'45		retrograde	2646 Apr 18 05:01	16° $\overline{3}$ 32'03
opposition	2638 Jun 18 19:27	27° $\overline{2}$ 42'31	1°22'41	opposition	2646 Jul 07 00:04	15° $\overline{3}$ 09'21 0°59'02
min. Earth dist.	2638 Jun 19 07:24	27° $\overline{2}$ 41'42	29.29751 AU	min. Earth dist.	2646 Jul 07 04:37	15° $\overline{3}$ 09'03 29.23465 AU
direct	2638 Sep 07 15:30	26° $\overline{2}$ 18'38		direct	2646 Sep 25 12:38	13° $\overline{3}$ 45'43
conjunction	2638 Dec 21 04:45	28° $\overline{2}$ 47'53	1°16'12	conjunction	2647 Jan 07 06:36	16° $\overline{3}$ 14'29 0°53'41
minimum elong	2638 Dec 21 04:45	28° $\overline{2}$ 47'53	1°16'13	minimum elong	2647 Jan 07 06:36	16° $\overline{3}$ 14'29 0°53'41
max. Earth dist.	2638 Dec 20 17:22	28° $\overline{2}$ 46'49	31.29231 AU	max. Earth dist.	2647 Jan 07 01:22	16° $\overline{3}$ 14'00 31.23084 AU
retrograde	2639 Jan 23 10:32	0° $\overline{3}$		retrograde	2647 Apr 20 18:06	18° $\overline{3}$ 43'23
opposition	2639 Apr 03 01:45	1° $\overline{3}$ 15'43		opposition	2647 Jul 09 12:49	17° $\overline{3}$ 20'39 0°55'38
min. Earth dist.	2639 Jun 17 06:06	30° \overline{R} $\overline{2}$		min. Earth dist.	2647 Jul 09 17:05	17° $\overline{3}$ 20'21 29.22738 AU
opposition	2639 Jun 21 07:52	29° $\overline{2}$ 53'24	1°20'07	direct	2647 Sep 27 23:01	15° $\overline{3}$ 57'02
min. Earth dist.	2639 Jun 21 19:17	29° $\overline{2}$ 52'38	29.28814 AU	conjunction	2648 Jan 09 16:09	18° $\overline{3}$ 25'48 0°50'27
direct	2639 Sep 10 05:26	28° $\overline{2}$ 29'31				

minimum elong	2648 Jan 09 16:09	18°  25'48	0°50'27	minimum elong	2656 Jan 26 19:51	5°  57'29	0°22'30
max. Earth dist.	2648 Jan 09 12:34	18°  25'28	31.22304 AU	max. Earth dist.	2656 Jan 26 22:02	5°  57'41	31.13739 AU
retrograde	2648 Apr 22 05:46	20°  54'50		retrograde	2656 May 10 02:33	8°  27'44	
opposition	2648 Jul 11 01:44	19°  32'03	0°52'09	opposition	2656 Jul 29 09:21	7°  04'20	0°22'02
min. Earth dist.	2648 Jul 11 05:31	19°  31'48	29.21890 AU	min. Earth dist.	2656 Jul 29 05:51	7°  04'34	29.13328 AU
direct	2648 Sep 29 11:51	18°  08'29		direct	2656 Oct 17 06:12	5°  40'54	
conjunction	2649 Jan 11 01:32	20°  37'13	0°47'10	conjunction	2657 Jan 28 05:24	8°  09'16	0°18'48
minimum elong	2649 Jan 11 01:32	20°  37'13	0°47'10	minimum elong	2657 Jan 28 05:24	8°  09'16	0°18'48
max. Earth dist.	2649 Jan 10 21:29	20°  36'50	31.21400 AU	max. Earth dist.	2657 Jan 28 09:44	8°  09'40	31.12918 AU
retrograde	2649 Apr 24 18:47	23°  06'24		retrograde	2657 May 12 14:50	10°  39'42	
opposition	2649 Jul 13 14:41	21°  43'33	0°48'36	opposition	2657 Jul 31 22:27	9°  16'16	0°18'03
min. Earth dist.	2649 Jul 13 17:22	21°  43'22	29.20922 AU	min. Earth dist.	2657 Jul 31 18:02	9°  16'34	29.12531 AU
direct	2649 Oct 01 22:42	20°  20'01		direct	2657 Oct 19 17:58	7°  52'53	
conjunction	2650 Jan 13 11:09	22°  48'42	0°43'48	conjunction	2658 Jan 30 14:58	10°  21'15	0°15'04
minimum elong	2650 Jan 13 11:10	22°  48'42	0°43'48	minimum elong	2658 Jan 30 14:59	10°  21'15	0°15'04
max. Earth dist.	2650 Jan 13 08:30	22°  48'26	31.20364 AU	behind sun begin	2658 Jan 30 12:29	10°  21'02	
retrograde	2650 Apr 27 05:09	25°  18'01		behind sun end	2658 Jan 30 17:28	10°  21'29	
opposition	2650 Jul 16 03:44	23°  55'06	0°44'58	max. Earth dist.	2658 Jan 30 19:17	10°  21'39	31.12155 AU
min. Earth dist.	2650 Jul 16 06:30	23°  54'54	29.19821 AU	retrograde	2658 May 15 04:30	12°  51'53	
direct	2650 Oct 04 11:39	22°  31'34		opposition	2658 Aug 03 11:30	11°  28'25	0°14'02
conjunction	2651 Jan 15 20:36	25°  00'10	0°40'23	min. Earth dist.	2658 Aug 03 05:47	11°  28'48	29.11783 AU
minimum elong	2651 Jan 15 20:36	25°  00'10	0°40'23	direct	2658 Oct 22 03:41	10°  05'06	
max. Earth dist.	2651 Jan 15 18:00	24°  59'56	31.19225 AU				
retrograde	2651 Apr 29 17:29	27°  29'38		conjunction	2659 Feb 02 00:47	12°  33'28	0°11'18
opposition	2651 Jul 18 16:37	26°  06'36	0°41'17	minimum elong	2659 Feb 02 00:46	12°  33'28	0°11'18
min. Earth dist.	2651 Jul 18 17:46	26°  06'32	29.18633 AU	behind sun begin	2659 Feb 01 20:01	12°  33'02	
direct	2651 Oct 07 00:06	24°  43'04		behind sun end	2659 Feb 02 05:32	12°  33'54	
conjunction	2652 Jan 18 06:05	27°  11'37	0°36'54	max. Earth dist.	2659 Feb 02 06:39	12°  34'00	31.11396 AU
minimum elong	2652 Jan 18 06:05	27°  11'37	0°36'54		2659 May 01 13:38	15° 	
max. Earth dist.	2652 Jan 18 04:33	27°  11'29	31.18006 AU	retrograde	2659 May 17 16:32	15°  04'17	
retrograde	2652 May 01 03:57	29°  41'13			2659 Jun 02 23:57	15°  R 	
opposition	2652 Jul 20 05:32	28°  18'05	0°37'32	opposition	2659 Aug 06 00:43	13°  40'47	0°10'00
min. Earth dist.	2652 Jul 20 06:57	28°  17'59	29.17409 AU	min. Earth dist.	2659 Aug 05 18:58	13°  41'10	29.11008 AU
direct	2652 Oct 08 11:29	26°  54'32		direct	2659 Oct 24 16:33	12°  17'32	
conjunction	2653 Jan 19 15:32	29°  23'01	0°33'22	conjunction	2660 Feb 04 10:37	14°  45'53	0°07'32
minimum elong	2653 Jan 19 15:32	29°  23'01	0°33'22	minimum elong	2660 Feb 04 10:37	14°  45'53	0°07'32
max. Earth dist.	2653 Jan 19 15:10	29°  22'59	31.16805 AU	behind sun begin	2660 Feb 04 04:47	14°  45'22	
	2653 Feb 05 01:30	0° 		behind sun end	2660 Feb 04 16:28	14°  46'25	
retrograde	2653 May 03 14:30	1°  52'45		max. Earth dist.	2660 Feb 04 16:40	14°  46'26	31.10601 AU
opposition	2653 Jul 22 18:29	0°  29'32	0°33'44		2660 Feb 10 15:25	15° 	
min. Earth dist.	2653 Jul 22 17:45	0°  29'35	29.16232 AU	retrograde	2660 May 19 06:46	17°  16'52	
	2653 Aug 10 08:09	30°  R 		opposition	2660 Aug 07 13:47	15°  53'20	0°05'57
direct	2653 Oct 10 23:34	29°  06'00		min. Earth dist.	2660 Aug 07 06:31	15°  53'50	29.10173 AU
	2653 Dec 08 00:38	0° 			2660 Sep 12 01:37	15°  R 	
conjunction	2654 Jan 22 00:50	1°  34'25	0°29'48	direct	2660 Oct 26 05:02	14°  30'07	
minimum elong	2654 Jan 22 00:50	1°  34'25	0°29'48		2660 Dec 07 15:17	15° 	
max. Earth dist.	2654 Jan 22 01:03	1°  34'27	31.15668 AU	conjunction	2661 Feb 05 20:39	16°  58'29	0°03'45
retrograde	2654 May 06 02:00	4°  04'19		minimum elong	2661 Feb 05 20:40	16°  58'29	0°03'45
opposition	2654 Jul 25 07:33	2°  41'01	0°29'53	behind sun begin	2661 Feb 05 14:20	16°  57'54	
min. Earth dist.	2654 Jul 25 06:31	2°  41'05	29.15155 AU	behind sun end	2661 Feb 06 03:01	16°  59'03	
direct	2654 Oct 13 08:55	1°  17'30		max. Earth dist.	2661 Feb 06 03:28	16°  59'06	31.09712 AU
conjunction	2655 Jan 24 10:24	3°  45'54	0°26'10	retrograde	2661 May 21 18:26	19°  29'39	
minimum elong	2655 Jan 24 10:24	3°  45'54	0°26'11	opposition	2661 Aug 10 03:13	18°  06'02	0°01'53
max. Earth dist.	2655 Jan 24 12:30	3°  46'05	31.14650 AU	min. Earth dist.	2661 Aug 09 20:27	18°  06'30	29.09236 AU
retrograde	2655 May 08 13:08	6°  15'57		direct	2661 Oct 28 16:31	16°  42'51	
opposition	2655 Jul 27 20:19	4°  52'36	0°25'59	desc. node	2662 Jan 26 07:36	18°  41'49	
min. Earth dist.	2655 Jul 27 17:34	4°  52'47	29.14185 AU				
direct	2655 Oct 15 20:15	3°  29'07		conjunction	2662 Feb 08 06:46	19°  11'11	0°00'-8
conjunction	2656 Jan 26 19:50	5°  57'29	0°22'30	minimum elong	2662 Feb 08 06:45	19°  11'11	0°00'08
				behind sun begin	2662 Feb 08 00:29	19°  10'37	
				behind sun end	2662 Feb 08 13:01	19°  11'45	
				max. Earth dist.	2662 Feb 08 14:21	19°  11'53	31.08720 AU
				retrograde	2662 May 24 05:53	21°  42'30	

opposition	2662 Aug 12 16:29	20° \approx 18'49	0°-2'-11	max. Earth dist.	2669 Feb 23 19:06	4° \times 40'59	31.00879 AU
min. Earth dist.	2662 Aug 12 08:08	20° \approx 19'23	29.08172 AU	retrograde	2669 Jun 08 22:26	7° \times 12'05	
direct	2662 Oct 31 05:15	18° \approx 55'38		opposition	2669 Aug 28 12:35	5° \times 47'47	0°-30'-17
				min. Earth dist.	2669 Aug 27 22:26	5° \times 48'45	29.00478 AU
conjunction	2663 Feb 10 16:55	21° \approx 23'55	0°-4'00	direct	2669 Nov 15 12:14	4° \times 24'36	
minimum elong	2663 Feb 10 16:56	21° \approx 23'55	0°04'00				
behind sun begin	2663 Feb 10 10:36	21° \approx 23'21		conjunction	2670 Feb 25 16:36	6° \times 52'43	0°-30'-9
behind sun end	2663 Feb 10 23:15	21° \approx 24'29		minimum elong	2670 Feb 25 16:35	6° \times 52'43	0°30'10
max. Earth dist.	2663 Feb 11 00:21	21° \approx 24'36	31.07592 AU	max. Earth dist.	2670 Feb 26 06:28	6° \times 54'02	31.00060 AU
retrograde	2663 May 26 17:51	23° \approx 55'22		retrograde	2670 Jun 11 10:48	9° \times 25'14	
opposition	2663 Aug 15 05:41	22° \approx 31'35	0°-6'-15	opposition	2670 Aug 31 01:52	8° \times 00'55	0°-34'-11
min. Earth dist.	2663 Aug 14 21:43	22° \approx 32'08	29.06998 AU	min. Earth dist.	2670 Aug 30 12:03	8° \times 01'51	28.99695 AU
direct	2663 Nov 02 15:49	21° \approx 08'23		direct	2670 Nov 17 23:20	6° \times 37'46	
conjunction	2664 Feb 13 03:11	23° \approx 36'37	0°-7'-47	conjunction	2671 Feb 28 03:17	9° \times 05'55	0°-33'-46
minimum elong	2664 Feb 13 03:11	23° \approx 36'37	0°07'48	minimum elong	2671 Feb 28 03:17	9° \times 05'55	0°33'47
behind sun begin	2664 Feb 12 21:23	23° \approx 36'06		max. Earth dist.	2671 Feb 28 18:11	9° \times 07'20	30.99299 AU
behind sun end	2664 Feb 13 08:58	23° \approx 37'09		retrograde	2671 Jun 13 23:41	11° \times 38'36	
max. Earth dist.	2664 Feb 13 12:05	23° \approx 37'27	31.06377 AU	opposition	2671 Sep 02 14:49	10° \times 14'16	0°-38'-2
retrograde	2664 May 28 05:06	26° \approx 08'11		min. Earth dist.	2671 Sep 01 23:27	10° \times 15'19	28.98938 AU
opposition	2664 Aug 16 18:51	24° \approx 44'18	0°-10'-19	direct	2671 Nov 20 11:50	8° \times 51'11	
min. Earth dist.	2664 Aug 16 09:32	24° \approx 44'56	29.05749 AU				
direct	2664 Nov 04 04:20	23° \approx 21'05		conjunction	2672 Mar 01 13:58	11° \times 19'22	0°-37'-21
				minimum elong	2672 Mar 01 13:57	11° \times 19'22	0°37'22
conjunction	2665 Feb 14 13:07	25° \approx 49'14	0°-11'-33	max. Earth dist.	2672 Mar 02 04:47	11° \times 20'46	30.98532 AU
minimum elong	2665 Feb 14 13:07	25° \approx 49'14	0°11'35	retrograde	2672 Jun 15 13:08	13° \times 52'15	
behind sun begin	2665 Feb 14 08:28	25° \approx 48'49		opposition	2672 Sep 04 04:10	12° \times 27'53	0°-41'-50
behind sun end	2665 Feb 14 17:46	25° \approx 49'40		min. Earth dist.	2672 Sep 03 13:11	12° \times 28'55	28.98165 AU
max. Earth dist.	2665 Feb 14 21:53	25° \approx 50'03	31.05125 AU	direct	2672 Nov 21 22:20	11° \times 04'51	
retrograde	2665 May 30 17:45	28° \approx 20'57					
opposition	2665 Aug 19 08:09	26° \approx 56'57	0°-14'-21	conjunction	2673 Mar 04 00:49	13° \times 33'04	0°-40'-52
min. Earth dist.	2665 Aug 18 22:21	26° \approx 57'37	29.04518 AU	minimum elong	2673 Mar 04 00:49	13° \times 33'04	0°40'53
direct	2665 Nov 06 14:30	25° \approx 33'41		max. Earth dist.	2673 Mar 04 17:02	13° \times 34'36	30.97726 AU
				retrograde	2673 Jun 18 01:13	16° \times 06'07	
conjunction	2666 Feb 16 23:24	28° \approx 01'48	0°-15'-19	opposition	2673 Sep 06 17:25	14° \times 41'44	0°-45'-34
minimum elong	2666 Feb 16 23:24	28° \approx 01'48	0°15'21	min. Earth dist.	2673 Sep 06 01:20	14° \times 42'50	28.97316 AU
behind sun begin	2666 Feb 16 21:15	28° \approx 01'37		direct	2673 Nov 24 10:50	13° \times 18'44	
behind sun end	2666 Feb 17 01:34	28° \approx 02'00					
max. Earth dist.	2666 Feb 17 10:11	28° \approx 02'49	31.03912 AU	conjunction	2674 Mar 06 11:50	15° \times 46'58	0°-44'-20
	2666 Apr 17 11:41	0° \times		minimum elong	2674 Mar 06 11:49	15° \times 46'58	0°44'20
retrograde	2666 Jun 02 05:16	0° \times 33'39		max. Earth dist.	2674 Mar 07 03:20	15° \times 48'26	30.96825 AU
	2666 Jul 19 19:01	30° \times		retrograde	2674 Jun 20 14:12	18° \times 20'11	
opposition	2666 Aug 21 21:13	29° \approx 09'33	0°-18'-23	opposition	2674 Sep 09 06:40	16° \times 55'45	0°-49'-14
min. Earth dist.	2666 Aug 21 10:32	29° \approx 10'16	29.03346 AU	min. Earth dist.	2674 Sep 08 14:45	16° \times 56'50	28.96369 AU
direct	2666 Nov 09 02:01	27° \approx 46'16		direct	2674 Nov 26 20:48	15° \times 32'44	
	2667 Feb 13 02:06	0° \times					
				conjunction	2675 Mar 08 23:05	18° \times 01'00	0°-47'-43
conjunction	2667 Feb 19 09:33	0° \times 14'22	0°-19'-4	minimum elong	2675 Mar 08 23:05	18° \times 01'00	0°47'44
minimum elong	2667 Feb 19 09:33	0° \times 14'22	0°19'05	max. Earth dist.	2675 Mar 09 15:54	18° \times 02'35	30.95806 AU
max. Earth dist.	2667 Feb 19 20:18	0° \times 15'23	31.02793 AU	retrograde	2675 Jun 23 01:54	20° \times 34'21	
retrograde	2667 Jun 04 19:08	2° \times 46'21		opposition	2675 Sep 11 19:54	19° \times 09'50	0°-52'-50
opposition	2667 Aug 24 10:18	1° \times 22'10	0°-22'-23	min. Earth dist.	2675 Sep 11 03:42	19° \times 10'57	28.95286 AU
min. Earth dist.	2667 Aug 23 22:17	1° \times 22'59	29.02287 AU	direct	2675 Nov 29 08:13	17° \times 46'49	
	2667 Nov 03 12:03	30° \times					
direct	2667 Nov 11 12:00	29° \approx 58'54		conjunction	2676 Mar 10 10:08	20° \times 15'03	0°-51'-3
	2667 Nov 19 14:04	0° \times		minimum elong	2676 Mar 10 10:07	20° \times 15'03	0°51'04
				max. Earth dist.	2676 Mar 11 02:20	20° \times 16'35	30.94677 AU
conjunction	2668 Feb 21 19:51	2° \times 27'00	0°-22'-48	retrograde	2676 Jun 24 16:01	22° \times 48'32	
minimum elong	2668 Feb 21 19:50	2° \times 27'00	0°22'49	opposition	2676 Sep 13 09:05	21° \times 23'55	0°-56'-21
max. Earth dist.	2668 Feb 22 08:14	2° \times 28'10	31.01775 AU	min. Earth dist.	2676 Sep 12 16:13	21° \times 25'04	28.94125 AU
retrograde	2668 Jun 06 07:32	4° \times 59'09		direct	2676 Nov 30 18:36	20° \times 00'51	
opposition	2668 Aug 25 23:27	3° \times 34'54	0°-26'-21				
min. Earth dist.	2668 Aug 25 11:07	3° \times 35'44	29.01326 AU	conjunction	2677 Mar 12 21:22	22° \times 29'05	0°-54'-18
direct	2668 Nov 13 00:21	2° \times 11'40		minimum elong	2677 Mar 12 21:21	22° \times 29'05	0°54'19
				max. Earth dist.	2677 Mar 13 14:44	22° \times 30'43	30.93486 AU
conjunction	2669 Feb 23 06:12	4° \times 39'46	0°-26'-29	retrograde	2677 Jun 27 04:26	25° \times 02'39	
minimum elong	2669 Feb 23 06:12	4° \times 39'46	0°26'30	opposition	2677 Sep 15 22:15	23° \times 37'56	0°-59'-46

min. Earth dist. direct	2677 Sep 15 05:29 2677 Dec 03 07:09	23° ✕ 39'05 22° ✕ 14'50	28.92936 AU	opposition direct	2685 Oct 04 05:17 2685 Dec 21 03:23	11° ☿ 30'46 10° ☿ 07'38	-1°-23'-37
conjunction minimum elong	2678 Mar 15 08:32 2678 Mar 15 08:31	24° ✕ 43'02 24° ✕ 43'02	0°-57'-27 0°57'29	conjunction minimum elong	2686 Apr 02 05:19 2686 Apr 02 05:19	12° ☿ 36'04 12° ☿ 36'03	-1°-19'-20 1°19'22
max. Earth dist.	2678 Mar 16 02:07	24° ✕ 44'42	30.92318 AU	max. Earth dist.	2686 Apr 03 03:25	12° ☿ 38'09	30.86388 AU
retrograde	2678 Jun 29 19:01	27° ✕ 16'42		retrograde	2686 Jul 18 03:21	15° ☿ 10'37	
opposition	2678 Sep 18 11:13	25° ☿ 51'52	-1°-3'-7	opposition	2686 Oct 06 18:12	13° ☿ 45'29	-1°-26'-4
min. Earth dist.	2678 Sep 17 17:02	25° ☿ 53'08	28.91798 AU	min. Earth dist.	2686 Oct 05 21:39	13° ☿ 46'54	28.86167 AU
direct	2678 Dec 05 18:59	24° ✕ 28'43		direct	2686 Dec 23 15:04	12° ☿ 22'21	
conjunction minimum elong	2679 Mar 17 19:49 2679 Mar 17 19:48	26° ☿ 56'55 26° ☿ 56'55	-1°00'-32 1°00'33	conjunction minimum elong	2687 Apr 04 17:35 2687 Apr 04 17:35	14° ☿ 50'49 14° ☿ 50'49	-1°-21'-35 1°21'35
max. Earth dist.	2679 Mar 18 14:06	26° ☿ 58'39	30.91206 AU	max. Earth dist.	2687 Apr 05 15:09	14° ☿ 52'52	30.85758 AU
retrograde	2679 Jul 02 07:20	29° ☿ 30'41		retrograde	2687 Jul 20 17:59	17° ☿ 25'28	
min. Earth dist.	2679 Sep 20 06:22	28° ☿ 07'00	28.90750 AU	min. Earth dist.	2687 Oct 08 09:36	16° ☿ 01'46	28.85491 AU
opposition	2679 Sep 21 00:07	28° ☿ 05'46	-1°-6'-22	opposition	2687 Oct 09 06:54	16° ☿ 00'17	-1°-28'-24
direct	2679 Dec 08 06:06	26° ☿ 42'35		direct	2687 Dec 26 02:24	14° ☿ 37'08	
conjunction minimum elong	2680 Mar 19 07:11 2680 Mar 19 07:10	29° ☿ 10'48 29° ☿ 10'47	-1°-3'-32 1°03'33	conjunction minimum elong	2688 Apr 06 05:54 2688 Apr 06 05:53	17° ☿ 05'39 17° ☿ 05'39	-1°-23'-42 1°23'43
max. Earth dist.	2680 Mar 20 02:32	29° ☿ 12'38	30.90221 AU	max. Earth dist.	2688 Apr 07 03:30	17° ☿ 07'42	30.85028 AU
retrograde	2680 Apr 10 06:39	0° ☿		retrograde	2688 Jul 22 06:54	19° ☿ 40'21	
opposition	2680 Jul 03 21:27	1° ☿ 44'39		opposition	2688 Oct 10 19:48	18° ☿ 15'08	-1°-30'-36
min. Earth dist.	2680 Sep 22 12:59	0° ☿ 19'40	-1°-9'-30	min. Earth dist.	2688 Oct 09 23:31	18° ☿ 16'32	28.84731 AU
direct	2680 Sep 21 17:31	0° ☿ 21'00	28.89830 AU	direct	2688 Dec 27 13:36	16° ☿ 51'56	
conjunction minimum elong	2680 Oct 04 12:29 2680 Dec 09 19:32	30° ☿ 28° ☿ 56'28		conjunction minimum elong	2689 Apr 08 18:11 2689 Apr 08 18:11	19° ☿ 20'28 19° ☿ 20'28	-1°-25'-41 1°25'42
max. Earth dist.	2681 Feb 10 06:24	0° ☿		max. Earth dist.	2689 Apr 09 16:15	19° ☿ 22'34	30.84252 AU
retrograde	2681 Mar 21 18:24	1° ☿ 24'41	-1°-6'-25	retrograde	2689 Jul 24 21:41	21° ☿ 55'14	
min. Earth dist.	2681 Mar 21 18:23	1° ☿ 24'41	1°06'26	min. Earth dist.	2689 Oct 12 11:08	20° ☿ 31'25	28.83940 AU
max. Earth dist.	2681 Mar 22 13:47	1° ☿ 26'31	30.89359 AU	opposition	2689 Oct 13 08:27	20° ☿ 29'56	-1°-32'-40
retrograde	2681 Jul 06 11:32	3° ☿ 58'39		direct	2689 Dec 30 03:21	19° ☿ 06'42	
min. Earth dist.	2681 Sep 24 06:48	2° ☿ 34'56	28.89047 AU	conjunction minimum elong	2690 Apr 11 06:32 2690 Apr 11 06:31	21° ☿ 35'16 21° ☿ 35'16	-1°-27'-33 1°27'35
opposition	2681 Sep 25 01:59	2° ☿ 33'37	-1°-12'-33	max. Earth dist.	2690 Apr 12 04:04	21° ☿ 37'18	30.83460 AU
direct	2681 Dec 12 06:52	1° ☿ 10'25		retrograde	2690 Jul 27 11:43	24° ☿ 10'03	
conjunction minimum elong	2682 Mar 24 05:59 2682 Mar 24 05:59	3° ☿ 38'39 3° ☿ 38'39	-1°-9'-13 1°09'14	opposition	2690 Oct 15 20:59	22° ☿ 44'42	-1°-34'-35
max. Earth dist.	2682 Mar 25 02:55	3° ☿ 40'38	30.88636 AU	min. Earth dist.	2690 Oct 15 00:33	22° ☿ 46'07	28.83180 AU
retrograde	2682 Jul 08 23:26	6° ☿ 12'44		direct	2691 Jan 01 15:02	21° ☿ 21'25	
opposition	2682 Sep 27 14:39	4° ☿ 47'39	-1°-15'-29	conjunction minimum elong	2691 Apr 13 19:02 2691 Apr 13 19:02	23° ☿ 50'00 23° ☿ 50'00	-1°-29'-17 1°29'17
min. Earth dist.	2682 Sep 26 18:12	4° ☿ 49'04	28.88378 AU	max. Earth dist.	2691 Apr 14 17:42	23° ☿ 52'09	30.82731 AU
direct	2682 Dec 14 19:23	3° ☿ 24'28		retrograde	2691 Jul 30 00:12	26° ☿ 24'50	
conjunction minimum elong	2683 Mar 26 17:34 2683 Mar 26 17:34	5° ☿ 52'44 5° ☿ 52'44	-1°-11'-55 1°11'56	min. Earth dist.	2691 Oct 17 11:56	25° ☿ 00'56	28.82496 AU
max. Earth dist.	2683 Mar 27 13:58	5° ☿ 54'41	30.88017 AU	opposition	2691 Oct 18 09:25	24° ☿ 59'26	-1°-36'-22
retrograde	2683 Jul 11 12:45	8° ☿ 26'57		direct	2692 Jan 04 04:01	23° ☿ 36'07	
min. Earth dist.	2683 Sep 29 07:10	7° ☿ 03'15	28.87809 AU	conjunction minimum elong	2692 Apr 15 07:16 2692 Apr 15 07:15	26° ☿ 04'44 26° ☿ 04'44	-1°-30'-53 1°30'54
opposition	2683 Sep 30 03:34	7° ☿ 01'51	-1°-18'-19	max. Earth dist.	2692 Apr 16 05:14	26° ☿ 06'49	30.82103 AU
direct	2683 Dec 17 05:34	5° ☿ 38'41		retrograde	2692 Jul 31 14:05	28° ☿ 39'37	
conjunction minimum elong	2684 Mar 28 05:17 2684 Mar 28 05:16	8° ☿ 07'00 8° ☿ 07'00	-1°-14'-30 1°14'32	opposition	2692 Oct 19 21:58	27° ☿ 14'10	-1°-38'00
max. Earth dist.	2684 Mar 29 03:16	8° ☿ 09'05	30.87467 AU	min. Earth dist.	2692 Oct 19 00:41	27° ☿ 15'39	28.81947 AU
retrograde	2684 Jul 13 00:48	10° ☿ 41'19		direct	2693 Jan 05 15:01	25° ☿ 50'50	
opposition	2684 Oct 01 16:25	9° ☿ 16'13	-1°-21'-1	conjunction minimum elong	2693 Apr 17 19:53 2693 Apr 17 19:53	28° ☿ 19'29 28° ☿ 19'29	-1°-32'-20 1°32'21
min. Earth dist.	2684 Sep 30 19:39	9° ☿ 17'39	28.87277 AU	max. Earth dist.	2693 Apr 18 19:20	28° ☿ 21'43	30.81617 AU
direct	2684 Dec 18 17:08	7° ☿ 53'04		retrograde	2693 Jun 04 23:12	0° ☿	
conjunction minimum elong	2685 Mar 30 17:10 2685 Mar 30 17:09	10° ☿ 21'26 10° ☿ 21'26	-1°-16'-59 1°17'00	opposition	2693 Aug 03 02:31	0° ☿ 54'24	
max. Earth dist.	2685 Mar 31 14:29	10° ☿ 23'27	30.86947 AU	min. Earth dist.	2693 Oct 03 11:16	30° ☿	
retrograde	2685 Jul 15 15:09	12° ☿ 55'53		opposition	2693 Oct 22 10:18	29° ☿ 28'57	-1°-39'-29
min. Earth dist.	2685 Oct 03 08:11	11° ☿ 32'14	28.86757 AU	min. Earth dist.	2693 Oct 21 12:36	29° ☿ 30'28	28.81535 AU

direct	2694 Jan 08 03:03	28° Υ 05'36		min. Earth dist.	2701 Nov 09 16:29	17° Υ 32'37	28.80607 AU
	2694 Apr 05 02:53	0° Υ		direct	2702 Jan 26 23:36	16° Υ 07'45	
conjunction	2694 Apr 20 08:27	0° Υ 34'18	-1°-33'-39	conjunction	2702 May 09 17:48	18° Υ 36'57	-1°-38'-54
minimum elong	2694 Apr 20 08:27	0° Υ 34'18	1°33'41	minimum elong	2702 May 09 17:48	18° Υ 36'57	1°38'55
max. Earth dist.	2694 Apr 21 07:10	0° Υ 36'27	30.81286 AU	max. Earth dist.	2702 May 10 15:48	18° Υ 39'01	30.80363 AU
retrograde	2694 Aug 05 16:01	3° Υ 09'16		retrograde	2702 Aug 25 03:46	21° Υ 11'57	
opposition	2694 Oct 24 22:39	1° Υ 43'49	-1°-40'-48	min. Earth dist.	2702 Nov 12 04:40	19° Υ 47'55	28.80339 AU
min. Earth dist.	2694 Oct 24 00:36	1° Υ 45'22	28.81280 AU	opposition	2702 Nov 13 00:19	19° Υ 46'32	-1°-45'-46
direct	2695 Jan 10 13:38	0° Υ 20'27		direct	2703 Jan 29 12:58	18° Υ 22'59	
conjunction	2695 Apr 22 21:11	2° Υ 49'14	-1°-34'-50	conjunction	2703 May 12 07:08	20° Υ 52'12	-1°-38'-53
minimum elong	2695 Apr 22 21:11	2° Υ 49'14	1°34'50	minimum elong	2703 May 12 07:08	20° Υ 52'12	1°38'53
max. Earth dist.	2695 Apr 23 20:53	2° Υ 51'28	30.81085 AU	max. Earth dist.	2703 May 13 03:52	20° Υ 54'09	30.80113 AU
retrograde	2695 Aug 08 03:09	5° Υ 24'14		retrograde	2703 Aug 27 17:08	23° Υ 27'09	
opposition	2695 Oct 27 10:57	3° Υ 58'48	-1°-41'-59	opposition	2703 Nov 15 12:12	22° Υ 01'42	-1°-45'-40
min. Earth dist.	2695 Oct 26 13:15	4° Υ 00'20	28.81142 AU	min. Earth dist.	2703 Nov 14 16:42	22° Υ 03'05	28.80118 AU
direct	2696 Jan 13 00:39	2° Υ 35'28		direct	2704 Feb 01 00:19	20° Υ 38'05	
conjunction	2696 Apr 24 09:58	5° Υ 04'18	-1°-35'-51	conjunction	2704 May 13 20:40	23° Υ 07'20	-1°-38'-42
minimum elong	2696 Apr 24 09:58	5° Υ 04'18	1°35'53	minimum elong	2704 May 13 20:40	23° Υ 07'20	1°38'44
max. Earth dist.	2696 Apr 25 09:18	5° Υ 06'31	30.81014 AU	max. Earth dist.	2704 May 14 18:04	23° Υ 09'21	30.79923 AU
retrograde	2696 Aug 09 17:52	7° Υ 39'22		retrograde	2704 Aug 29 04:27	25° Υ 42'13	
opposition	2696 Oct 28 23:12	6° Υ 13'58	-1°-43'00	min. Earth dist.	2704 Nov 16 05:10	24° Υ 18'06	28.79978 AU
min. Earth dist.	2696 Oct 28 00:42	6° Υ 15'32	28.81115 AU	opposition	2704 Nov 17 00:02	24° Υ 16'46	-1°-45'-24
direct	2697 Jan 14 10:53	4° Υ 50'37		direct	2705 Feb 02 12:02	22° Υ 53'06	
conjunction	2697 Apr 26 22:52	7° Υ 19'33	-1°-36'-44	conjunction	2705 May 16 10:07	25° Υ 22'23	-1°-38'-23
minimum elong	2697 Apr 26 22:52	7° Υ 19'33	1°36'45	minimum elong	2705 May 16 10:07	25° Υ 22'23	1°38'23
max. Earth dist.	2697 Apr 27 22:22	7° Υ 21'46	30.81006 AU	max. Earth dist.	2705 May 17 06:44	25° Υ 24'20	30.79850 AU
retrograde	2697 Aug 12 06:18	9° Υ 54'39		retrograde	2705 Aug 31 18:40	27° Υ 57'12	
opposition	2697 Oct 31 11:34	8° Υ 29'17	-1°-43'-52	opposition	2705 Nov 19 11:45	26° Υ 31'46	-1°-44'-59
min. Earth dist.	2697 Oct 30 14:16	8° Υ 30'46	28.81123 AU	min. Earth dist.	2705 Nov 18 16:16	26° Υ 33'08	28.79965 AU
direct	2698 Jan 16 21:38	7° Υ 05'57		direct	2706 Feb 04 22:54	25° Υ 08'03	
conjunction	2698 Apr 29 12:09	9° Υ 34'57	-1°-37'-28	conjunction	2706 May 18 23:43	27° Υ 37'24	-1°-37'-55
minimum elong	2698 Apr 29 12:09	9° Υ 34'57	1°37'29	minimum elong	2706 May 18 23:44	27° Υ 37'24	1°37'56
max. Earth dist.	2698 Apr 30 11:38	9° Υ 37'10	30.81016 AU	max. Earth dist.	2706 May 19 20:25	27° Υ 39'20	30.79893 AU
retrograde	2698 Aug 14 20:59	12° Υ 10'05		retrograde	2706 Aug 07 01:42	0° Υ	
opposition	2698 Nov 02 23:37	10° Υ 44'44	-1°-44'-34		2706 Sep 03 05:42	0° Υ 12'10	
min. Earth dist.	2698 Nov 02 01:47	10° Υ 46'16	28.81111 AU		2706 Sep 30 18:43	30° Υ	
direct	2699 Jan 19 10:52	9° Υ 21'23		opposition	2706 Nov 21 23:24	28° Υ 46'45	-1°-44'-24
conjunction	2699 May 02 01:25	11° Υ 50'29	-1°-38'-3	min. Earth dist.	2706 Nov 21 05:03	28° Υ 48'03	28.80081 AU
minimum elong	2699 May 02 01:25	11° Υ 50'29	1°38'03	direct	2707 Feb 07 09:40	27° Υ 23'00	
max. Earth dist.	2699 May 02 23:51	11° Υ 52'36	30.80964 AU	conjunction	2707 May 21 13:22	29° Υ 52'26	-1°-37'-18
retrograde	2699 Aug 17 10:42	14° Υ 25'37		minimum elong	2707 May 21 13:22	29° Υ 52'26	1°37'18
opposition	2699 Nov 05 12:00	13° Υ 00'16	-1°-45'-6	max. Earth dist.	2707 May 22 10:03	29° Υ 54'22	30.80090 AU
min. Earth dist.	2699 Nov 04 15:33	13° Υ 01'42	28.81026 AU		2707 May 24 21:51	0° Υ	
direct	2700 Jan 21 22:10	11° Υ 36'54		retrograde	2707 Sep 05 19:24	2° Υ 27'09	
conjunction	2700 May 04 14:47	14° Υ 06'02	-1°-38'-29	opposition	2707 Nov 24 11:01	1° Υ 01'47	-1°-43'-39
minimum elong	2700 May 04 14:47	14° Υ 06'02	1°38'30	min. Earth dist.	2707 Nov 23 15:51	1° Υ 03'08	28.80339 AU
max. Earth dist.	2700 May 05 13:35	14° Υ 08'11	30.80835 AU	direct	2708 Jan 04 10:51	30° Υ	
	2700 May 28 22:09	15° Υ			2708 Feb 09 22:08	29° Υ 38'02	
retrograde	2700 Aug 20 00:29	16° Υ 41'09			2708 Mar 16 19:24	0° Υ	
min. Earth dist.	2700 Nov 07 03:22	15° Υ 17'15	28.80845 AU	conjunction	2708 May 23 02:51	2° Υ 07'32	-1°-36'-31
opposition	2700 Nov 08 00:12	15° Υ 15'48	-1°-45'-29	minimum elong	2708 May 23 02:52	2° Υ 07'32	1°36'33
	2700 Nov 17 10:31	15° Υ		max. Earth dist.	2708 May 23 22:52	2° Υ 09'25	30.80411 AU
direct	2701 Jan 24 11:34	13° Υ 52'23		retrograde	2708 Sep 07 08:19	4° Υ 42'14	
	2701 Mar 30 04:01	15° Υ		opposition	2708 Nov 25 22:46	3° Υ 16'56	-1°-42'-44
conjunction	2701 May 07 04:11	16° Υ 21'33	-1°-38'-46	min. Earth dist.	2708 Nov 25 04:52	3° Υ 18'11	28.80718 AU
minimum elong	2701 May 07 04:11	16° Υ 21'33	1°38'46	direct	2709 Feb 11 08:37	1° Υ 53'10	
max. Earth dist.	2701 May 08 01:28	16° Υ 23'33	30.80620 AU	conjunction	2709 May 25 16:46	4° Υ 22'47	-1°-35'-36
retrograde	2701 Aug 22 15:19	18° Υ 56'37		minimum elong	2709 May 25 16:46	4° Υ 22'47	1°35'37
opposition	2701 Nov 10 12:20	17° Υ 31'14	-1°-45'-42	max. Earth dist.	2709 May 26 13:10	4° Υ 24'42	30.80841 AU

retrograde	2709 Sep 09 22:17	6°II57'27		direct	2718 Mar 03 19:50	22°II10'23	
opposition	2709 Nov 28 10:11	5°II32'13	-1°-41'-40				
min. Earth dist.	2709 Nov 27 15:58	5°II33'30	28.81167 AU	conjunction	2718 Jun 15 23:18	24°II40'31	-1°-21'00
direct	2710 Feb 13 21:26	4°II08'28		minimum elong	2718 Jun 15 23:19	24°II40'31	1°21'01
				max. Earth dist.	2718 Jun 16 13:16	24°II41'49	30.83650 AU
conjunction	2710 May 28 06:40	6°II38'11	-1°-34'-32	retrograde	2718 Sep 30 16:45	27°II14'10	
minimum elong	2710 May 28 06:40	6°II38'11	1°34'34	opposition	2718 Dec 18 15:46	25°II49'12	-1°-25'-24
max. Earth dist.	2710 May 29 01:26	6°II39'57	30.81306 AU	min. Earth dist.	2718 Dec 18 03:25	25°II50'04	28.83961 AU
retrograde	2710 Sep 12 13:27	9°II12'49		direct	2719 Mar 06 09:14	24°II24'57	
opposition	2710 Nov 30 21:49	7°II47'39	-1°-40'-27				
min. Earth dist.	2710 Nov 30 04:49	7°II48'51	28.81633 AU	conjunction	2719 Jun 18 13:06	26°II55'07	-1°-18'-44
direct	2711 Feb 16 09:18	6°II23'54		minimum elong	2719 Jun 18 13:06	26°II55'07	1°18'44
				max. Earth dist.	2719 Jun 19 01:39	26°II56'17	30.84180 AU
conjunction	2711 May 30 20:42	8°II53'44	-1°-33'-19	retrograde	2719 Oct 03 05:47	29°II28'39	
minimum elong	2711 May 30 20:42	8°II53'44	1°33'19	opposition	2719 Dec 21 02:45	28°II03'42	-1°-22'-54
max. Earth dist.	2711 May 31 15:52	8°II55'32	30.81747 AU	min. Earth dist.	2719 Dec 20 15:17	28°II04'31	28.84573 AU
retrograde	2711 Sep 15 02:10	11°II28'18		direct	2720 Mar 07 20:42	26°II39'25	
opposition	2711 Dec 03 09:21	10°II03'12	-1°-39'-4				
min. Earth dist.	2711 Dec 02 16:51	10°II04'22	28.82034 AU	conjunction	2720 Jun 20 03:12	29°II09'39	-1°-16'-20
direct	2712 Feb 18 22:41	8°II39'26		minimum elong	2720 Jun 20 03:12	29°II09'39	1°16'22
				max. Earth dist.	2720 Jun 20 16:23	29°II10'53	30.84872 AU
conjunction	2712 Jun 01 10:44	11°II09'20	-1°-31'-57		2720 Jul 12 23:26	0°☾	
minimum elong	2712 Jun 01 10:44	11°II09'20	1°31'59	retrograde	2720 Oct 04 17:50	1°☾43'02	
max. Earth dist.	2712 Jun 02 03:58	11°II10'57	30.82117 AU	opposition	2720 Dec 22 13:33	0°☾18'10	-1°-20'-17
retrograde	2712 Sep 16 16:25	13°II43'50		min. Earth dist.	2720 Dec 22 02:19	0°☾18'58	28.85327 AU
opposition	2712 Dec 04 20:52	12°II18'46	-1°-37'-32		2721 Jan 02 07:41	30°☾II	
min. Earth dist.	2712 Dec 04 05:05	12°II19'53	28.82361 AU	direct	2721 Mar 10 09:35	28°II53'52	
direct	2713 Feb 20 10:12	10°II54'58			2721 May 13 23:15	0°☾	
conjunction	2713 Jun 04 00:57	13°II24'56	-1°-30'-27	conjunction	2721 Jun 22 17:11	1°☾24'10	-1°-13'-50
minimum elong	2713 Jun 04 00:57	13°II24'56	1°30'28	minimum elong	2721 Jun 22 17:12	1°☾24'10	1°13'51
max. Earth dist.	2713 Jun 04 18:12	13°II26'33	30.82393 AU	max. Earth dist.	2721 Jun 23 04:43	1°☾25'14	30.85703 AU
retrograde	2713 Sep 19 04:43	15°II59'18		retrograde	2721 Oct 07 08:02	3°☾57'26	
opposition	2713 Dec 07 08:20	14°II34'16	-1°-35'-51	opposition	2721 Dec 25 00:23	2°☾32'39	-1°-17'-33
min. Earth dist.	2713 Dec 06 17:47	14°II35'18	28.82586 AU	min. Earth dist.	2721 Dec 24 13:40	2°☾33'24	28.86209 AU
direct	2714 Feb 22 22:45	13°II10'25		direct	2722 Mar 12 20:57	1°☾08'20	
conjunction	2714 Jun 06 15:03	15°II40'25	-1°-28'-49	conjunction	2722 Jun 25 07:23	3°☾38'44	-1°-11'-13
minimum elong	2714 Jun 06 15:04	15°II40'25	1°28'51	minimum elong	2722 Jun 25 07:24	3°☾38'44	1°11'14
max. Earth dist.	2714 Jun 07 06:40	15°II41'53	30.82599 AU	max. Earth dist.	2722 Jun 25 19:15	3°☾39'50	30.86618 AU
retrograde	2714 Sep 21 18:32	18°II14'40		retrograde	2722 Oct 09 20:27	6°☾11'53	
opposition	2714 Dec 09 19:30	16°II49'38	-1°-34'-2	opposition	2722 Dec 27 11:10	4°☾47'12	-1°-14'-41
min. Earth dist.	2714 Dec 09 04:58	16°II50'40	28.82767 AU	min. Earth dist.	2722 Dec 27 01:40	4°☾47'52	28.87139 AU
direct	2715 Feb 25 10:22	15°II25'42		direct	2723 Mar 15 09:34	3°☾22'53	
conjunction	2715 Jun 09 05:10	17°II55'44	-1°-27'-3	conjunction	2723 Jun 27 21:31	5°☾53'22	-1°-8'-29
minimum elong	2715 Jun 09 05:11	17°II55'44	1°27'04	minimum elong	2723 Jun 27 21:31	5°☾53'22	1°08'29
max. Earth dist.	2715 Jun 09 20:27	17°II57'10	30.82770 AU	max. Earth dist.	2723 Jun 28 07:37	5°☾54'18	30.87568 AU
retrograde	2715 Sep 24 04:32	20°II29'50		retrograde	2723 Oct 12 10:15	8°☾26'24	
opposition	2715 Dec 12 06:47	19°II04'49	-1°-32'-5	opposition	2723 Dec 29 21:56	7°☾01'48	-1°-11'-42
min. Earth dist.	2715 Dec 11 17:47	19°II05'44	28.82944 AU	min. Earth dist.	2723 Dec 29 12:31	7°☾02'28	28.88076 AU
direct	2716 Feb 27 21:40	17°II40'48		direct	2724 Mar 16 21:20	5°☾37'30	
conjunction	2716 Jun 10 19:07	20°II10'51	-1°-25'-10	conjunction	2724 Jun 29 11:43	8°☾08'03	-1°-5'-39
minimum elong	2716 Jun 10 19:07	20°II10'51	1°25'11	minimum elong	2724 Jun 29 11:43	8°☾08'03	1°05'40
max. Earth dist.	2716 Jun 11 09:51	20°II12'14	30.82981 AU	max. Earth dist.	2724 Jun 29 21:16	8°☾08'56	30.88471 AU
retrograde	2716 Sep 25 17:08	22°II44'48		retrograde	2724 Oct 13 21:12	10°☾40'58	
opposition	2716 Dec 13 17:50	21°II19'47	-1°-29'-59	opposition	2724 Dec 31 08:52	9°☾16'27	-1°-8'-37
min. Earth dist.	2716 Dec 13 04:26	21°II20'44	28.83177 AU	min. Earth dist.	2724 Dec 31 01:20	9°☾16'59	28.88939 AU
direct	2717 Mar 01 09:56	19°II55'41		direct	2725 Mar 19 08:32	7°☾52'07	
conjunction	2717 Jun 13 09:11	22°II25'46	-1°-23'-8	conjunction	2725 Jul 02 02:04	10°☾22'44	-1°-2'-43
minimum elong	2717 Jun 13 09:11	22°II25'46	1°23'09	minimum elong	2725 Jul 02 02:04	10°☾22'44	1°02'44
max. Earth dist.	2717 Jun 13 23:00	22°II27'04	30.83253 AU	max. Earth dist.	2725 Jul 02 10:16	10°☾23'30	30.89302 AU
retrograde	2717 Sep 28 04:35	24°II59'35		retrograde	2725 Oct 16 10:14	12°☾55'30	
opposition	2717 Dec 16 04:51	23°II34'34	-1°-27'-45	opposition	2726 Jan 02 19:28	11°☾31'04	-1°-5'-26
min. Earth dist.	2717 Dec 15 16:56	23°II35'25	28.83507 AU	min. Earth dist.	2726 Jan 02 12:01	11°☾31'36	28.89715 AU

direct	2726 Mar 21 20:34	10° 5 06'41		2734 Jul 10 01:06	0° 0	
conjunction	2726 Jul 04 16:20	12° 5 37'22	0°-59'-42	conjunction	2734 Jul 23 07:49	0° 0 29'26 0°-32'-50
minimum elong	2726 Jul 04 16:20	12° 5 37'22	0°59'43	minimum elong	2734 Jul 23 07:49	0° 0 29'26 0°32'51
max. Earth dist.	2726 Jul 04 23:13	12° 5 38'00	30.90034 AU	max. Earth dist.	2734 Jul 23 08:43	0° 0 29'31 30.97116 AU
retrograde	2726 Oct 18 21:12	15° 5 09'58		retrograde	2734 Nov 05 21:41	3° 0 00'41
opposition	2727 Jan 05 06:18	13° 5 45'35	-1°-2'-10	opposition	2735 Jan 22 17:23	1° 0 36'50 0°-33'-9
min. Earth dist.	2727 Jan 05 00:44	13° 5 45'59	28.90416 AU	min. Earth dist.	2735 Jan 22 16:08	1° 0 36'55 28.97768 AU
direct	2727 Mar 24 06:20	12° 5 21'09		direct	2735 Apr 11 08:03	0° 0 12'08
conjunction	2727 Jul 07 06:24	14° 5 51'51	0°-56'-35	conjunction	2735 Jul 25 21:31	2° 0 43'12 0°-29'-12
minimum elong	2727 Jul 07 06:24	14° 5 51'51	0°56'36	minimum elong	2735 Jul 25 21:31	2° 0 43'12 0°29'13
max. Earth dist.	2727 Jul 07 12:53	14° 5 52'27	30.90718 AU	max. Earth dist.	2735 Jul 25 21:32	2° 0 43'12 30.98414 AU
retrograde	2727 Oct 21 08:26	17° 5 24'17		retrograde	2735 Nov 08 08:05	5° 0 14'19
opposition	2728 Jan 07 16:52	15° 5 59'57	0°-58'-48	opposition	2736 Jan 25 03:48	3° 0 50'34 0°-29'-15
min. Earth dist.	2728 Jan 07 11:20	16° 5 00'21	28.91073 AU	min. Earth dist.	2736 Jan 25 04:23	3° 0 50'32 28.99070 AU
direct	2728 Mar 25 19:47	14° 5 35'28		direct	2736 Apr 12 17:38	2° 0 25'53
conjunction	2728 Jul 08 20:25	17° 5 06'12	0°-53'-24	conjunction	2736 Jul 27 11:28	4° 0 57'00 0°-25'-31
minimum elong	2728 Jul 08 20:25	17° 5 06'12	0°53'26	minimum elong	2736 Jul 27 11:28	4° 0 57'00 0°25'33
max. Earth dist.	2728 Jul 09 01:05	17° 5 06'38	30.91378 AU	max. Earth dist.	2736 Jul 27 10:53	4° 0 56'57 30.99698 AU
retrograde	2728 Oct 22 20:18	19° 5 38'27		retrograde	2736 Nov 09 18:45	7° 0 27'57
opposition	2729 Jan 09 03:20	18° 5 14'09	0°-55'-21	opposition	2737 Jan 26 14:00	6° 0 04'19 0°-25'-18
min. Earth dist.	2729 Jan 08 23:07	18° 5 14'27	28.91746 AU	min. Earth dist.	2737 Jan 26 14:52	6° 0 04'15 29.00309 AU
direct	2729 Mar 28 06:54	16° 5 49'35		direct	2737 Apr 15 06:37	4° 0 39'37
conjunction	2729 Jul 11 10:33	19° 5 20'22	0°-50'-8	conjunction	2737 Jul 30 01:23	7° 0 10'47 0°-21'-49
minimum elong	2729 Jul 11 10:34	19° 5 20'22	0°50'09	minimum elong	2737 Jul 30 01:23	7° 0 10'47 0°21'50
max. Earth dist.	2729 Jul 11 15:25	19° 5 20'49	30.92071 AU	max. Earth dist.	2737 Jul 29 22:43	7° 0 10'32 31.00887 AU
retrograde	2729 Oct 25 07:31	21° 5 52'27		retrograde	2737 Nov 12 06:04	9° 0 41'34
opposition	2730 Jan 11 13:47	20° 5 28'11	0°-51'-49	opposition	2738 Jan 29 00:26	8° 0 18'00 0°-21'-18
min. Earth dist.	2730 Jan 11 10:03	20° 5 28'27	28.92457 AU	min. Earth dist.	2738 Jan 29 02:47	8° 0 17'50 29.01452 AU
direct	2730 Mar 30 19:40	19° 5 03'34		direct	2738 Apr 17 16:47	6° 0 53'16
conjunction	2730 Jul 14 00:22	21° 5 34'23	0°-46'-48	conjunction	2738 Aug 01 15:15	9° 0 24'28 0°-18'-4
minimum elong	2730 Jul 14 00:23	21° 5 34'23	0°46'49	minimum elong	2738 Aug 01 15:15	9° 0 24'28 0°18'05
max. Earth dist.	2730 Jul 14 03:27	21° 5 34'40	30.92828 AU	max. Earth dist.	2738 Aug 01 12:22	9° 0 24'12 31.01970 AU
retrograde	2730 Oct 27 20:42	24° 5 06'16		retrograde	2738 Nov 14 16:35	11° 0 55'05
opposition	2731 Jan 14 00:07	22° 5 42'04	0°-48'-13	opposition	2739 Jan 31 10:46	10° 0 31'35 0°-17'-18
min. Earth dist.	2731 Jan 13 20:52	22° 5 42'18	28.93270 AU	min. Earth dist.	2739 Jan 31 13:58	10° 0 31'21 29.02470 AU
direct	2731 Apr 02 07:23	21° 5 17'23		direct	2739 Apr 20 05:11	9° 0 06'48
conjunction	2731 Jul 16 14:18	23° 5 48'14	0°-43'-24	conjunction	2739 Aug 04 04:56	11° 0 38'00 0°-14'-19
minimum elong	2731 Jul 16 14:18	23° 5 48'14	0°43'25	minimum elong	2739 Aug 04 04:56	11° 0 38'00 0°14'20
max. Earth dist.	2731 Jul 16 17:51	23° 5 48'34	30.93697 AU	behind sun begin	2739 Aug 04 02:06	11° 0 37'45
retrograde	2731 Oct 30 08:27	26° 5 19'58		behind sun end	2739 Aug 04 07:46	11° 0 38'15
opposition	2732 Jan 16 10:30	24° 5 55'48	0°-44'-33	max. Earth dist.	2739 Aug 03 23:48	11° 0 37'32 31.02945 AU
min. Earth dist.	2732 Jan 16 08:13	24° 5 55'58	28.94202 AU	retrograde	2739 Nov 17 04:41	14° 0 08'26
direct	2732 Apr 03 20:42	23° 5 31'07		opposition	2740 Feb 02 21:00	12° 0 44'58 0°-13'-16
conjunction	2732 Jul 18 04:01	26° 5 02'00	0°-39'-56	min. Earth dist.	2740 Feb 03 01:00	12° 0 44'41 29.03408 AU
minimum elong	2732 Jul 18 04:01	26° 5 02'00	0°39'57	direct	2740 Apr 21 17:03	11° 0 20'08
max. Earth dist.	2732 Jul 18 06:01	26° 5 02'11	30.94712 AU	conjunction	2740 Aug 05 18:40	13° 0 51'20 0°-10'-33
retrograde	2732 Oct 31 21:17	28° 5 33'33		minimum elong	2740 Aug 05 18:41	13° 0 51'20 0°10'34
opposition	2733 Jan 17 20:48	27° 5 09'29	0°-40'-49	behind sun begin	2740 Aug 05 13:36	13° 0 50'53
min. Earth dist.	2733 Jan 17 18:14	27° 5 09'40	28.95282 AU	behind sun end	2740 Aug 05 23:45	13° 0 51'47
direct	2733 Apr 06 08:58	25° 5 44'46		max. Earth dist.	2740 Aug 05 13:37	13° 0 50'53 31.03842 AU
conjunction	2733 Jul 20 17:57	28° 5 15'43	0°-36'-25		2740 Sep 06 17:53	15° 0
minimum elong	2733 Jul 20 17:57	28° 5 15'43	0°36'26	retrograde	2740 Nov 18 15:16	16° 0 21'34
max. Earth dist.	2733 Jul 20 19:52	28° 5 15'53	30.95854 AU		2741 Feb 03 04:50	15° 0
retrograde	2733 Sep 10 02:59	0° 0		opposition	2741 Feb 04 07:17	14° 0 58'08 0°-9'-13
	2733 Nov 03 08:16	0° 0 47'06		min. Earth dist.	2741 Feb 04 12:44	14° 0 57'45 29.04270 AU
	2733 Dec 28 19:30	30° 0		direct	2741 Apr 24 06:28	13° 0 33'15
opposition	2734 Jan 20 07:07	29° 5 23'08	0°-37'-1		2741 Jul 09 10:27	15° 0
min. Earth dist.	2734 Jan 20 06:06	29° 5 23'13	28.96482 AU	conjunction	2741 Aug 08 08:13	16° 0 04'27 0°-6'-47
direct	2734 Apr 08 20:08	27° 5 58'26		minimum elong	2741 Aug 08 08:12	16° 0 04'27 0°06'47

behind sun begin	2741 Aug 08 02:04	16°03'55		direct	2748 May 09 14:54	29°01'12	
behind sun end	2741 Aug 08 14:20	16°05'00			2748 Jul 10 09:59	0°00	
max. Earth dist.	2741 Aug 08 01:13	16°03'50	31.04694 AU				
retrograde	2741 Nov 21 03:30	18°034'29		conjunction	2748 Aug 24 04:18	1°032'34	0°19'41
opposition	2742 Feb 06 17:19	17°011'05	0°-5'-10	minimum elong	2748 Aug 24 04:18	1°032'34	0°19'42
min. Earth dist.	2742 Feb 06 22:46	17°010'42	29.05117 AU	max. Earth dist.	2748 Aug 23 16:27	1°031'28	31.12279 AU
direct	2742 Apr 26 19:03	15°046'08		retrograde	2748 Dec 06 06:37	4°001'34	
				opposition	2749 Feb 21 16:03	2°038'44	0°22'58
conjunction	2742 Aug 10 21:41	18°017'21	0°-3'00	min. Earth dist.	2749 Feb 22 02:03	2°038'02	29.12900 AU
minimum elong	2742 Aug 10 21:43	18°017'21	0°03'00	direct	2749 May 12 02:13	1°013'47	
behind sun begin	2742 Aug 10 15:08	18°016'46					
behind sun end	2742 Aug 11 04:17	18°017'56		conjunction	2749 Aug 26 17:27	3°045'11	0°23'23
max. Earth dist.	2742 Aug 10 14:36	18°016'43	31.05540 AU	minimum elong	2749 Aug 26 17:27	3°045'11	0°23'23
retrograde	2742 Nov 23 14:05	20°047'11		max. Earth dist.	2749 Aug 26 05:46	3°044'07	31.13470 AU
opposition	2743 Feb 09 03:34	19°023'50	0°-1'-7	retrograde	2749 Dec 08 16:43	6°014'04	
min. Earth dist.	2743 Feb 09 10:35	19°023'20	29.05986 AU	opposition	2750 Feb 24 02:18	4°051'18	0°26'54
direct	2743 Apr 29 06:57	17°058'51		min. Earth dist.	2750 Feb 24 13:48	4°050'30	29.14040 AU
asc. node	2743 May 22 15:09	18°007'53		direct	2750 May 14 14:57	3°026'22	
conjunction	2743 Aug 13 10:49	20°030'02	0°00'53	conjunction	2750 Aug 29 06:22	5°057'48	0°27'02
minimum elong	2743 Aug 13 10:49	20°030'02	0°00'53	minimum elong	2750 Aug 29 06:22	5°057'48	0°27'02
behind sun begin	2743 Aug 13 04:14	20°029'28		max. Earth dist.	2750 Aug 28 16:41	5°056'32	31.14558 AU
behind sun end	2743 Aug 13 17:24	20°030'37		retrograde	2750 Dec 11 04:51	8°026'32	
max. Earth dist.	2743 Aug 13 02:43	20°029'19	31.06445 AU	opposition	2751 Feb 26 12:29	7°003'50	0°30'47
retrograde	2743 Nov 26 02:31	22°059'42		min. Earth dist.	2751 Feb 26 23:57	7°003'02	29.15073 AU
opposition	2744 Feb 11 13:36	21°036'23	0°02'55	direct	2751 May 17 02:55	5°038'53	
min. Earth dist.	2744 Feb 11 20:12	21°035'55	29.06926 AU				
direct	2744 Apr 30 19:43	20°011'22		conjunction	2751 Aug 31 19:13	8°010'19	0°30'39
				minimum elong	2751 Aug 31 19:13	8°010'19	0°30'38
conjunction	2744 Aug 15 00:04	22°042'35	0°04'43	max. Earth dist.	2751 Aug 31 05:16	8°009'02	31.15519 AU
minimum elong	2744 Aug 15 00:04	22°042'35	0°04'43	retrograde	2751 Dec 13 15:32	10°038'55	
behind sun begin	2744 Aug 14 17:37	22°042'01		opposition	2752 Feb 28 22:48	9°016'15	0°34'37
behind sun end	2744 Aug 15 06:30	22°043'09		min. Earth dist.	2752 Feb 29 12:05	9°015'19	29.15979 AU
max. Earth dist.	2744 Aug 14 15:22	22°041'48	31.07427 AU	direct	2752 May 18 15:31	7°051'16	
retrograde	2744 Nov 27 12:13	25°012'05					
opposition	2745 Feb 12 23:42	23°048'50	0°06'58	conjunction	2752 Sep 02 08:01	10°022'41	0°34'12
min. Earth dist.	2745 Feb 13 07:44	23°048'16	29.07973 AU	minimum elong	2752 Sep 02 08:00	10°022'41	0°34'12
direct	2745 May 03 05:47	22°023'48		max. Earth dist.	2752 Sep 01 16:41	10°021'16	31.16376 AU
				retrograde	2752 Dec 15 03:46	12°051'06	
conjunction	2745 Aug 17 13:16	24°055'02	0°08'29	opposition	2753 Mar 02 08:48	11°028'28	0°38'23
minimum elong	2745 Aug 17 13:16	24°055'02	0°08'28	min. Earth dist.	2753 Mar 02 21:58	11°027'33	29.16785 AU
behind sun begin	2745 Aug 17 07:32	24°054'32		direct	2753 May 21 05:18	10°003'27	
behind sun end	2745 Aug 17 19:01	24°055'33					
max. Earth dist.	2745 Aug 17 04:24	24°054'14	31.08534 AU	conjunction	2753 Sep 04 20:44	12°034'51	0°37'43
retrograde	2745 Nov 29 22:18	27°024'23		minimum elong	2753 Sep 04 20:44	12°034'51	0°37'42
opposition	2746 Feb 15 09:45	26°001'14	0°11'00	max. Earth dist.	2753 Sep 04 04:39	12°033'22	31.17136 AU
min. Earth dist.	2746 Feb 15 17:31	26°000'41	29.09126 AU	retrograde	2753 Dec 17 13:08	15°003'06	
direct	2746 May 05 18:22	24°036'13		opposition	2754 Mar 04 19:02	13°040'29	0°42'06
				min. Earth dist.	2754 Mar 05 09:49	13°039'27	29.17529 AU
conjunction	2746 Aug 20 02:12	27°007'29	0°12'14	direct	2754 May 23 16:28	12°015'25	
minimum elong	2746 Aug 20 02:12	27°007'29	0°12'14				
behind sun begin	2746 Aug 19 21:53	27°007'06		conjunction	2754 Sep 07 09:08	14°046'45	0°41'09
behind sun end	2746 Aug 20 06:31	27°007'52		minimum elong	2754 Sep 07 09:07	14°046'45	0°41'10
max. Earth dist.	2746 Aug 19 16:02	27°006'33	31.09736 AU	max. Earth dist.	2754 Sep 06 16:51	14°045'15	31.17864 AU
retrograde	2746 Dec 02 09:01	29°036'43		retrograde	2754 Dec 19 22:45	17°014'50	
opposition	2747 Feb 17 19:53	28°013'40	0°15'01	opposition	2755 Mar 07 05:08	15°052'14	0°45'45
min. Earth dist.	2747 Feb 18 04:35	28°013'03	29.10377 AU	min. Earth dist.	2755 Mar 07 19:44	15°051'13	29.18248 AU
direct	2747 May 08 03:36	26°048'40		direct	2755 May 26 05:33	14°027'08	
conjunction	2747 Aug 22 15:19	29°019'59	0°15'58	conjunction	2755 Sep 09 21:25	16°058'25	0°44'32
minimum elong	2747 Aug 22 15:19	29°019'59	0°15'58	minimum elong	2755 Sep 09 21:25	16°058'25	0°44'32
max. Earth dist.	2747 Aug 22 05:25	29°019'05	31.11011 AU	max. Earth dist.	2755 Sep 09 03:57	16°056'48	31.18590 AU
	2747 Sep 09 20:03	0°00		retrograde	2755 Dec 22 08:56	19°026'20	
retrograde	2747 Dec 04 18:58	1°049'06		opposition	2756 Mar 08 15:09	18°003'45	0°49'20
opposition	2748 Feb 20 05:55	0°026'10	0°19'00	min. Earth dist.	2756 Mar 09 06:31	18°002'40	29.19013 AU
min. Earth dist.	2748 Feb 20 15:18	0°025'30	29.11653 AU	direct	2756 May 27 15:26	16°038'35	
	2748 Mar 07 00:20	30°00					

conjunction	2756 Sep 11 09:44	19° $\mathring{\text{M}}$ 09'51	0°47'51	direct	2764 Jun 14 13:57	4° $\mathring{\text{A}}$ 08'26	
minimum elong	2756 Sep 11 09:44	19° $\mathring{\text{M}}$ 09'51	0°47'52	max. Earth dist.	2764 Sep 28 11:20	6° $\mathring{\text{A}}$ 37'39	31.27218 AU
max. Earth dist.	2756 Sep 10 16:47	19° $\mathring{\text{M}}$ 08'17	31.19383 AU				
retrograde	2756 Dec 23 17:23	21° $\mathring{\text{M}}$ 37'36		conjunction	2764 Sep 29 08:49	6° $\mathring{\text{A}}$ 39'38	1°11'28
opposition	2757 Mar 11 01:18	20° $\mathring{\text{M}}$ 15'03	0°52'50	minimum elong	2764 Sep 29 08:48	6° $\mathring{\text{A}}$ 39'38	1°11'29
min. Earth dist.	2757 Mar 11 16:58	20° $\mathring{\text{M}}$ 13'57	29.19845 AU	retrograde	2765 Jan 10 04:53	9° $\mathring{\text{A}}$ 06'41	
direct	2757 May 30 03:34	18° $\mathring{\text{M}}$ 49'52		opposition	2765 Mar 28 11:34	7° $\mathring{\text{A}}$ 44'37	1°17'41
				min. Earth dist.	2765 Mar 29 06:51	7° $\mathring{\text{A}}$ 43'16	29.27623 AU
conjunction	2757 Sep 13 21:45	21° $\mathring{\text{M}}$ 21'05	0°51'06	direct	2765 Jun 17 00:13	6° $\mathring{\text{A}}$ 19'38	
minimum elong	2757 Sep 13 21:45	21° $\mathring{\text{M}}$ 21'05	0°51'06				
max. Earth dist.	2757 Sep 13 03:28	21° $\mathring{\text{M}}$ 19'23	31.20267 AU	conjunction	2765 Oct 01 20:27	8° $\mathring{\text{A}}$ 50'49	1°14'00
retrograde	2757 Dec 26 03:31	23° $\mathring{\text{M}}$ 48'43		minimum elong	2765 Oct 01 20:26	8° $\mathring{\text{A}}$ 50'49	1°13'59
opposition	2758 Mar 13 11:24	22° $\mathring{\text{M}}$ 26'12	0°56'16	max. Earth dist.	2765 Sep 30 23:23	8° $\mathring{\text{A}}$ 48'52	31.27855 AU
min. Earth dist.	2758 Mar 14 02:56	22° $\mathring{\text{M}}$ 25'07	29.20798 AU	retrograde	2766 Jan 12 13:07	11° $\mathring{\text{A}}$ 17'46	
direct	2758 Jun 01 14:11	21° $\mathring{\text{M}}$ 01'01		opposition	2766 Mar 30 22:04	9° $\mathring{\text{A}}$ 55'43	1°20'19
				min. Earth dist.	2766 Mar 31 17:54	9° $\mathring{\text{A}}$ 54'21	29.28206 AU
conjunction	2758 Sep 16 09:52	23° $\mathring{\text{M}}$ 32'13	0°54'16	direct	2766 Jun 19 12:44	8° $\mathring{\text{A}}$ 30'45	
minimum elong	2758 Sep 16 09:52	23° $\mathring{\text{M}}$ 32'13	0°54'17	max. Earth dist.	2766 Oct 03 09:18	10° $\mathring{\text{A}}$ 59'46	31.28402 AU
max. Earth dist.	2758 Sep 15 16:29	23° $\mathring{\text{M}}$ 30'37	31.21270 AU				
retrograde	2758 Dec 28 12:34	25° $\mathring{\text{M}}$ 59'45		conjunction	2766 Oct 04 07:50	11° $\mathring{\text{A}}$ 01'52	1°16'24
opposition	2759 Mar 15 21:38	24° $\mathring{\text{M}}$ 37'18	0°59'36	minimum elong	2766 Oct 04 07:49	11° $\mathring{\text{A}}$ 01'52	1°16'25
min. Earth dist.	2759 Mar 16 14:03	24° $\mathring{\text{M}}$ 36'09	29.21854 AU	retrograde	2767 Jan 14 22:50	13° $\mathring{\text{A}}$ 28'43	
direct	2759 Jun 04 01:30	23° $\mathring{\text{M}}$ 12'09		opposition	2767 Apr 02 08:28	12° $\mathring{\text{A}}$ 06'41	1°22'50
				min. Earth dist.	2767 Apr 03 04:14	12° $\mathring{\text{A}}$ 05'19	29.28736 AU
conjunction	2759 Sep 18 21:39	25° $\mathring{\text{M}}$ 43'21	0°57'22	direct	2767 Jun 21 23:15	10° $\mathring{\text{A}}$ 41'41	
minimum elong	2759 Sep 18 21:38	25° $\mathring{\text{M}}$ 43'21	0°57'21				
max. Earth dist.	2759 Sep 18 03:02	25° $\mathring{\text{M}}$ 41'38	31.22372 AU	conjunction	2767 Oct 06 19:09	13° $\mathring{\text{A}}$ 12'45	1°18'43
retrograde	2759 Dec 31 00:11	28° $\mathring{\text{M}}$ 10'48		minimum elong	2767 Oct 06 19:09	13° $\mathring{\text{A}}$ 12'45	1°18'42
opposition	2760 Mar 17 07:44	26° $\mathring{\text{M}}$ 48'25	1°02'52	max. Earth dist.	2767 Oct 05 21:32	13° $\mathring{\text{A}}$ 10'45	31.28906 AU
min. Earth dist.	2760 Mar 17 23:37	26° $\mathring{\text{M}}$ 47'19	29.22979 AU	retrograde	2768 Jan 17 07:11	15° $\mathring{\text{A}}$ 39'31	
direct	2760 Jun 05 12:40	25° $\mathring{\text{M}}$ 23'18		opposition	2768 Apr 03 19:00	14° $\mathring{\text{A}}$ 17'29	1°25'14
				min. Earth dist.	2768 Apr 04 15:44	14° $\mathring{\text{A}}$ 16'03	29.29235 AU
conjunction	2760 Sep 20 09:40	27° $\mathring{\text{M}}$ 54'32	1°00'22	direct	2768 Jun 23 10:18	12° $\mathring{\text{A}}$ 52'29	
minimum elong	2760 Sep 20 09:39	27° $\mathring{\text{M}}$ 54'32	1°00'22	max. Earth dist.	2768 Oct 07 07:38	15° $\mathring{\text{A}}$ 21'23	31.29416 AU
max. Earth dist.	2760 Sep 19 15:18	27° $\mathring{\text{M}}$ 52'50	31.23492 AU				
	2760 Nov 26 10:37	0° $\mathring{\text{A}}$		conjunction	2768 Oct 08 06:16	15° $\mathring{\text{A}}$ 23'29	1°20'54
retrograde	2761 Jan 01 10:29	0° $\mathring{\text{A}}$ 21'54		minimum elong	2768 Oct 08 06:15	15° $\mathring{\text{A}}$ 23'29	1°20'54
	2761 Feb 07 02:57	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$		retrograde	2769 Jan 18 17:56	17° $\mathring{\text{A}}$ 50'10	
opposition	2761 Mar 19 17:59	28° $\mathring{\text{M}}$ 59'36	1°06'02	opposition	2769 Apr 06 05:21	16° $\mathring{\text{A}}$ 28'08	1°27'31
min. Earth dist.	2761 Mar 20 11:24	28° $\mathring{\text{M}}$ 58'23	29.24096 AU	min. Earth dist.	2769 Apr 07 01:10	16° $\mathring{\text{A}}$ 26'45	29.29772 AU
direct	2761 Jun 08 00:39	27° $\mathring{\text{M}}$ 34'33		direct	2769 Jun 25 21:17	15° $\mathring{\text{A}}$ 03'07	
	2761 Sep 20 07:09	0° $\mathring{\text{A}}$					
conjunction	2761 Sep 22 21:32	0° $\mathring{\text{A}}$ 05'47	1°03'17	conjunction	2769 Oct 10 17:24	17° $\mathring{\text{A}}$ 34'04	1°22'59
minimum elong	2761 Sep 22 21:32	0° $\mathring{\text{A}}$ 05'47	1°03'16	minimum elong	2769 Oct 10 17:23	17° $\mathring{\text{A}}$ 34'04	1°22'58
max. Earth dist.	2761 Sep 22 02:13	0° $\mathring{\text{A}}$ 03'59	31.24585 AU	max. Earth dist.	2769 Oct 09 19:30	17° $\mathring{\text{A}}$ 32'02	31.29979 AU
retrograde	2762 Jan 03 22:31	2° $\mathring{\text{A}}$ 33'04		retrograde	2770 Jan 21 03:45	20° $\mathring{\text{A}}$ 00'41	
opposition	2762 Mar 22 04:19	1° $\mathring{\text{A}}$ 10'51	1°09'06	opposition	2770 Apr 08 16:02	18° $\mathring{\text{A}}$ 38'40	1°29'40
min. Earth dist.	2762 Mar 22 21:20	1° $\mathring{\text{A}}$ 09'40	29.25150 AU	min. Earth dist.	2770 Apr 09 12:43	18° $\mathring{\text{A}}$ 37'14	29.30390 AU
	2762 May 11 12:16	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$		direct	2770 Jun 28 09:33	17° $\mathring{\text{A}}$ 13'40	
direct	2762 Jun 10 13:57	29° $\mathring{\text{M}}$ 45'50		max. Earth dist.	2770 Oct 12 06:05	19° $\mathring{\text{A}}$ 42'32	31.30650 AU
	2762 Jul 10 05:23	0° $\mathring{\text{A}}$					
conjunction	2762 Sep 25 09:16	2° $\mathring{\text{A}}$ 17'04	1°06'07	conjunction	2770 Oct 13 04:11	19° $\mathring{\text{A}}$ 44'35	1°24'56
minimum elong	2762 Sep 25 09:15	2° $\mathring{\text{A}}$ 17'04	1°06'07	minimum elong	2770 Oct 13 04:10	19° $\mathring{\text{A}}$ 44'35	1°24'56
max. Earth dist.	2762 Sep 24 13:25	2° $\mathring{\text{A}}$ 15'14	31.25579 AU	retrograde	2771 Jan 23 15:08	22° $\mathring{\text{A}}$ 11'09	
retrograde	2763 Jan 06 08:22	4° $\mathring{\text{A}}$ 44'18		opposition	2771 Apr 11 02:33	20° $\mathring{\text{A}}$ 49'09	1°31'42
opposition	2763 Mar 24 14:48	3° $\mathring{\text{A}}$ 22'08	1°12'04	min. Earth dist.	2771 Apr 11 22:11	20° $\mathring{\text{A}}$ 47'48	29.31103 AU
min. Earth dist.	2763 Mar 25 09:15	3° $\mathring{\text{A}}$ 20'51	29.26103 AU	direct	2771 Jun 30 22:33	19° $\mathring{\text{A}}$ 24'12	
direct	2763 Jun 13 00:52	1° $\mathring{\text{A}}$ 57'09					
conjunction	2763 Sep 27 21:04	4° $\mathring{\text{A}}$ 28'22	1°08'50	conjunction	2771 Oct 15 15:06	21° $\mathring{\text{A}}$ 55'05	1°26'46
minimum elong	2763 Sep 27 21:04	4° $\mathring{\text{A}}$ 28'22	1°08'50	minimum elong	2771 Oct 15 15:06	21° $\mathring{\text{A}}$ 55'05	1°26'45
max. Earth dist.	2763 Sep 27 01:00	4° $\mathring{\text{A}}$ 26'31	31.26467 AU	max. Earth dist.	2771 Oct 14 17:05	21° $\mathring{\text{A}}$ 53'03	31.31399 AU
retrograde	2764 Jan 08 18:17	6° $\mathring{\text{A}}$ 55'30		retrograde	2772 Jan 26 01:01	24° $\mathring{\text{A}}$ 21'37	
opposition	2764 Mar 26 01:05	5° $\mathring{\text{A}}$ 33'24	1°14'56	opposition	2772 Apr 12 13:05	22° $\mathring{\text{A}}$ 59'40	1°33'35
min. Earth dist.	2764 Mar 26 19:33	5° $\mathring{\text{A}}$ 32'07	29.26922 AU	min. Earth dist.	2772 Apr 13 09:36	22° $\mathring{\text{A}}$ 58'16	29.31893 AU
				direct	2772 Jul 02 09:04	21° $\mathring{\text{A}}$ 34'46	
				max. Earth dist.	2772 Oct 16 04:28	24° $\mathring{\text{A}}$ 03'39	31.32203 AU

conjunction	2772 Oct 17 02:03	24° 2 05'39	1°28'28	minimum elong	2780 Nov 03 14:47	11° 1 30'01	1°37'24
minimum elong	2772 Oct 17 02:02	24° 2 05'39	1°28'29	max. Earth dist.	2780 Nov 02 15:48	11° 1 30'52	31.35098 AU
retrograde	2773 Jan 27 11:24	26° 2 32'08		retrograde	2781 Feb 13 18:11	13° 1 34'18	
opposition	2773 Apr 14 23:47	25° 2 10'16	1°35'21	opposition	2781 May 02 15:46	12° 1 34'26	1°44'19
min. Earth dist.	2773 Apr 15 19:52	25° 2 08'53	29.32686 AU	min. Earth dist.	2781 May 03 13:30	12° 1 32'57	29.35201 AU
direct	2773 Jul 04 22:30	23° 2 45'25		direct	2781 Jul 22 18:17	11° 1 09'43	
				max. Earth dist.	2781 Nov 05 02:52	13° 1 38'02	31.35087 AU
conjunction	2773 Oct 19 12:45	26° 2 16'17	1°30'03				
minimum elong	2773 Oct 19 12:45	26° 2 16'17	1°30'03	conjunction	2781 Nov 06 00:51	13° 1 40'05	1°37'54
max. Earth dist.	2773 Oct 18 14:21	26° 2 14'12	31.32976 AU	minimum elong	2781 Nov 06 00:51	13° 1 40'05	1°37'54
retrograde	2774 Jan 29 22:35	28° 2 42'45			2781 Dec 13 16:41	15° 1	
opposition	2774 Apr 17 10:37	27° 2 20'55	1°36'58	retrograde	2782 Feb 16 04:08	16° 1 06'21	
min. Earth dist.	2774 Apr 18 07:02	27° 2 19'31	29.33441 AU		2782 Apr 25 14:19	15° 1 00	
direct	2774 Jul 07 09:29	25° 2 56'08		opposition	2782 May 05 02:58	14° 1 44'28	1°44'47
				min. Earth dist.	2782 May 05 23:44	14° 1 43'03	29.35210 AU
conjunction	2774 Oct 21 23:38	28° 2 26'58	1°31'30	direct	2782 Jul 25 08:08	13° 1 19'46	
minimum elong	2774 Oct 21 23:38	28° 2 26'58	1°31'31		2782 Oct 16 15:26	15° 1 00	
max. Earth dist.	2774 Oct 21 01:59	28° 2 24'57	31.33679 AU				
	2774 Dec 05 23:06	0° 1 00		conjunction	2782 Nov 08 10:51	15° 1 50'04	1°38'16
retrograde	2775 Feb 01 06:52	0° 1 53'25		minimum elong	2782 Nov 08 10:50	15° 1 50'04	1°38'17
	2775 Apr 02 07:23	30° 1 00		max. Earth dist.	2782 Nov 07 12:30	15° 1 47'59	31.35135 AU
opposition	2775 Apr 19 21:29	29° 2 31'38	1°38'26	retrograde	2783 Feb 18 15:18	18° 1 16'21	
min. Earth dist.	2775 Apr 20 18:22	29° 2 30'12	29.34086 AU	opposition	2783 May 07 14:03	16° 1 54'28	1°45'06
direct	2775 Jul 09 21:56	28° 2 06'53		min. Earth dist.	2783 May 08 10:28	16° 1 53'04	29.35313 AU
	2775 Oct 07 09:03	0° 1 00		direct	2783 Jul 27 19:13	15° 1 29'48	
max. Earth dist.	2775 Oct 23 11:17	0° 1 35'32	31.34259 AU				
conjunction	2775 Oct 24 10:17	0° 1 37'40	1°32'49	conjunction	2783 Nov 10 20:54	18° 1 00'04	1°38'30
minimum elong	2775 Oct 24 10:17	0° 1 37'40	1°32'49	minimum elong	2783 Nov 10 20:54	18° 1 00'04	1°38'29
retrograde	2776 Feb 03 16:52	3° 1 04'06		max. Earth dist.	2783 Nov 10 00:00	17° 1 58'07	31.35278 AU
opposition	2776 Apr 21 08:24	1° 1 42'20	1°39'47	retrograde	2784 Feb 20 23:38	20° 1 26'23	
min. Earth dist.	2776 Apr 22 05:05	1° 1 40'55	29.34600 AU	opposition	2784 May 09 01:20	19° 1 04'31	1°45'16
direct	2776 Jul 11 08:30	0° 1 17'37		min. Earth dist.	2784 May 09 21:33	19° 1 03'09	29.35481 AU
				direct	2784 Jul 29 07:41	17° 1 39'55	
conjunction	2776 Oct 25 21:06	2° 1 48'21	1°34'00	max. Earth dist.	2784 Nov 11 09:13	20° 1 08'09	31.35480 AU
minimum elong	2776 Oct 25 21:06	2° 1 48'21	1°34'01	conjunction	2784 Nov 12 06:44	20° 1 10'10	1°38'35
max. Earth dist.	2776 Oct 24 22:54	2° 1 46'17	31.34685 AU	minimum elong	2784 Nov 12 06:44	20° 1 10'10	1°38'35
retrograde	2777 Feb 05 01:23	5° 1 14'45		retrograde	2785 Feb 22 09:42	22° 1 36'31	
opposition	2777 Apr 23 19:29	3° 1 53'00	1°40'58	opposition	2785 May 11 12:34	21° 1 14'42	1°45'17
min. Earth dist.	2777 Apr 24 17:15	3° 1 51'30	29.34948 AU	min. Earth dist.	2785 May 12 07:54	21° 1 13'23	29.35700 AU
direct	2777 Jul 13 19:34	2° 1 28'18		direct	2785 Jul 31 18:07	19° 1 50'09	
max. Earth dist.	2777 Oct 27 08:23	4° 1 56'48	31.34962 AU				
conjunction	2777 Oct 28 07:40	4° 1 58'58	1°35'04	conjunction	2785 Nov 14 16:43	22° 1 20'23	1°38'31
minimum elong	2777 Oct 28 07:40	4° 1 58'58	1°35'03	minimum elong	2785 Nov 14 16:43	22° 1 20'23	1°38'31
retrograde	2778 Feb 07 12:03	7° 1 25'20		max. Earth dist.	2785 Nov 13 20:39	22° 1 18'31	31.35697 AU
opposition	2778 Apr 26 06:30	6° 1 03'34	1°42'02	retrograde	2786 Feb 24 18:41	24° 1 46'48	
min. Earth dist.	2778 Apr 27 03:25	6° 1 02'08	29.35154 AU	opposition	2786 May 14 00:05	23° 1 25'01	1°45'08
direct	2778 Jul 16 06:51	4° 1 38'52		min. Earth dist.	2786 May 14 19:59	23° 1 23'39	29.35905 AU
				direct	2786 Aug 03 04:37	22° 1 00'33	
conjunction	2778 Oct 30 18:07	7° 1 09'28	1°35'58	max. Earth dist.	2786 Nov 16 05:54	24° 1 28'49	31.35884 AU
minimum elong	2778 Oct 30 18:07	7° 1 09'27	1°35'59	conjunction	2786 Nov 17 02:26	24° 1 30'44	1°38'19
max. Earth dist.	2778 Oct 29 19:19	7° 1 07'20	31.35094 AU	minimum elong	2786 Nov 17 02:26	24° 1 30'44	1°38'20
retrograde	2779 Feb 09 21:30	9° 1 35'48		retrograde	2787 Feb 27 05:25	26° 1 57'13	
opposition	2779 Apr 28 17:41	8° 1 14'00	1°42'56	opposition	2787 May 16 11:29	25° 1 35'27	1°44'51
min. Earth dist.	2779 Apr 29 15:43	8° 1 12'30	29.35231 AU	min. Earth dist.	2787 May 17 06:11	25° 1 34'11	29.36049 AU
direct	2779 Jul 18 18:38	6° 1 49'18		direct	2787 Aug 05 15:29	24° 1 11'03	
max. Earth dist.	2779 Nov 01 05:26	9° 1 17'40	31.35130 AU				
conjunction	2779 Nov 02 04:30	9° 1 19'49	1°36'45	conjunction	2787 Nov 19 12:23	26° 1 41'13	1°37'59
minimum elong	2779 Nov 02 04:29	9° 1 19'49	1°36'45	minimum elong	2787 Nov 19 12:23	26° 1 41'13	1°37'58
retrograde	2780 Feb 12 08:13	11° 1 46'07		max. Earth dist.	2787 Nov 18 16:28	26° 1 39'21	31.35969 AU
opposition	2780 Apr 30 04:33	10° 1 24'17	1°43'42	retrograde	2788 Feb 29 15:13	29° 1 07'46	
min. Earth dist.	2780 May 01 01:41	10° 1 22'51	29.35223 AU	opposition	2788 May 17 23:03	27° 1 46'00	1°44'25
direct	2780 Jul 20 07:24	8° 1 59'34		min. Earth dist.	2788 May 18 18:41	27° 1 44'40	29.36080 AU
				direct	2788 Aug 07 02:18	26° 1 21'39	
conjunction	2780 Nov 03 14:47	11° 1 30'01	1°37'24	conjunction	2788 Nov 20 22:17	28° 1 51'46	1°37'30

minimum elong	2788 Nov 20 22:17	28° M 51'46	1°37'31	conjunction	2796 Dec 08 02:30	16° Ź 13'22	1°28'51
max. Earth dist.	2788 Nov 20 02:22	28° M 49'54	31.35942 AU	minimum elong	2796 Dec 08 02:30	16° Ź 13'22	1°28'51
	2788 Dec 22 10:45	0° Ź		retrograde	2797 Mar 20 10:52	18° Ź 40'20	
retrograde	2789 Mar 03 02:16	1° Ź 18'21		opposition	2797 Jun 07 09:13	17° Ź 18'11	1°34'02
	2789 May 18 08:18	30° R M		min. Earth dist.	2797 Jun 08 00:22	17° Ź 17'09	29.32697 AU
opposition	2789 May 20 10:43	29° M 56'35	1°43'50	direct	2797 Aug 27 12:01	15° Ź 53'58	
min. Earth dist.	2789 May 21 05:17	29° M 55'19	29.35973 AU				
direct	2789 Aug 09 13:54	28° M 32'16		conjunction	2797 Dec 10 11:41	18° Ź 23'24	1°27'10
	2789 Oct 25 17:12	0° Ź		minimum elong	2797 Dec 10 11:41	18° Ź 23'24	1°27'10
				max. Earth dist.	2797 Dec 09 21:00	18° Ź 22'01	31.32504 AU
conjunction	2789 Nov 23 08:02	1° Ź 02'19	1°36'53	retrograde	2798 Mar 22 21:48	20° Ź 50'29	
minimum elong	2789 Nov 23 08:02	1° Ź 02'19	1°36'53	opposition	2798 Jun 09 21:13	19° Ź 28'20	1°32'11
max. Earth dist.	2789 Nov 22 12:03	1° Ź 00'27	31.35759 AU	min. Earth dist.	2798 Jun 10 10:45	19° Ź 27'25	29.32466 AU
retrograde	2790 Mar 05 13:00	3° Ź 28'58		direct	2798 Aug 29 22:55	18° Ź 04'11	
opposition	2790 May 22 22:32	2° Ź 07'10	1°43'06				
min. Earth dist.	2790 May 23 17:42	2° Ź 05'52	29.35726 AU	conjunction	2798 Dec 12 21:00	20° Ź 33'36	1°25'22
direct	2790 Aug 12 00:36	0° Ź 42'51		minimum elong	2798 Dec 12 21:00	20° Ź 33'36	1°25'23
				max. Earth dist.	2798 Dec 12 06:36	20° Ź 32'15	31.32276 AU
conjunction	2790 Nov 25 17:52	3° Ź 12'50	1°36'08	retrograde	2799 Mar 25 09:16	23° Ź 00'48	
minimum elong	2790 Nov 25 17:52	3° Ź 12'50	1°36'09	opposition	2799 Jun 12 09:15	21° Ź 38'40	1°30'12
max. Earth dist.	2790 Nov 24 22:45	3° Ź 11'03	31.35444 AU	min. Earth dist.	2799 Jun 12 23:00	21° Ź 37'44	29.32231 AU
retrograde	2791 Mar 07 23:40	5° Ź 39'30		direct	2799 Sep 01 08:48	20° Ź 14'35	
opposition	2791 May 25 10:07	4° Ź 17'39	1°42'14				
min. Earth dist.	2791 May 26 04:41	4° Ź 16'24	29.35332 AU	conjunction	2799 Dec 15 06:27	22° Ź 43'59	1°23'27
direct	2791 Aug 14 14:40	2° Ź 53'21		minimum elong	2799 Dec 15 06:27	22° Ź 43'59	1°23'27
max. Earth dist.	2791 Nov 27 07:45	5° Ź 21'24	31.34996 AU	max. Earth dist.	2799 Dec 14 17:22	22° Ź 42'45	31.32019 AU
				retrograde	2800 Mar 26 20:37	25° Ź 11'19	
conjunction	2791 Nov 28 03:33	5° Ź 23'15	1°35'15	opposition	2800 Jun 13 21:28	23° Ź 49'10	1°28'04
minimum elong	2791 Nov 28 03:33	5° Ź 23'15	1°35'15	min. Earth dist.	2800 Jun 14 10:18	23° Ź 48'18	29.31924 AU
retrograde	2792 Mar 09 11:22	7° Ź 49'57		direct	2800 Sep 02 21:49	22° Ź 25'10	
opposition	2792 May 26 21:52	6° Ź 28'01	1°41'13				
min. Earth dist.	2792 May 27 16:10	6° Ź 26'47	29.34841 AU	conjunction	2800 Dec 16 15:42	24° Ź 54'32	1°21'24
direct	2792 Aug 16 02:25	5° Ź 03'42		minimum elong	2800 Dec 16 15:42	24° Ź 54'32	1°21'25
				max. Earth dist.	2800 Dec 16 02:10	24° Ź 53'16	31.31670 AU
conjunction	2792 Nov 29 13:08	7° Ź 33'30	1°34'14	retrograde	2801 Mar 29 09:23	27° Ź 22'00	
minimum elong	2792 Nov 29 13:08	7° Ź 33'30	1°34'14	opposition	2801 Jun 16 09:50	25° Ź 59'51	1°25'50
max. Earth dist.	2792 Nov 28 18:50	7° Ź 31'48	31.34468 AU	min. Earth dist.	2801 Jun 16 22:11	25° Ź 59'01	29.31527 AU
retrograde	2793 Mar 11 19:36	10° Ź 00'13		direct	2801 Sep 05 08:44	24° Ź 35'54	
opposition	2793 May 29 09:42	8° Ź 38'14	1°40'04				
min. Earth dist.	2793 May 30 03:47	8° Ź 37'00	29.34287 AU	conjunction	2801 Dec 19 01:13	27° Ź 05'14	1°19'15
direct	2793 Aug 18 15:20	7° Ź 13'54		minimum elong	2801 Dec 19 01:13	27° Ź 05'15	1°19'14
				max. Earth dist.	2801 Dec 18 13:10	27° Ź 04'07	31.31209 AU
conjunction	2793 Dec 01 22:29	9° Ź 43'36	1°33'05	retrograde	2802 Mar 31 19:01	29° Ź 32'50	
minimum elong	2793 Dec 01 22:29	9° Ź 43'36	1°33'04	opposition	2802 Jun 18 22:15	28° Ź 10'39	1°23'28
max. Earth dist.	2793 Dec 01 03:50	9° Ź 41'51	31.33927 AU	min. Earth dist.	2802 Jun 19 10:27	28° Ź 09'50	29.30992 AU
retrograde	2794 Mar 14 05:58	12° Ź 10'20		direct	2802 Sep 07 21:11	26° Ź 46'46	
opposition	2794 May 31 21:29	10° Ź 48'17	1°38'46				
min. Earth dist.	2794 Jun 01 14:15	10° Ź 47'08	29.33770 AU	conjunction	2802 Dec 21 10:32	29° Ź 16'03	1°16'58
direct	2794 Aug 21 03:05	9° Ź 23'56		minimum elong	2802 Dec 21 10:33	29° Ź 16'03	1°16'59
				max. Earth dist.	2802 Dec 20 21:53	29° Ź 14'52	31.30613 AU
conjunction	2794 Dec 04 07:51	11° Ź 53'33	1°31'48		2803 Jan 10 03:42	0° Ź	
minimum elong	2794 Dec 04 07:51	11° Ź 53'33	1°31'48	retrograde	2803 Apr 03 06:36	1° Ź 43'45	
max. Earth dist.	2794 Dec 03 15:00	11° Ź 51'58	31.33437 AU	opposition	2803 Jun 21 10:37	0° Ź 21'32	1°20'58
retrograde	2795 Mar 16 14:54	14° Ź 20'20		min. Earth dist.	2803 Jun 21 21:47	0° Ź 20'47	29.30320 AU
opposition	2795 Jun 03 09:24	12° Ź 58'14	1°37'20		2803 Jul 04 21:11	30° R Ź	
min. Earth dist.	2795 Jun 04 02:14	12° Ź 57'05	29.33318 AU	direct	2803 Sep 10 09:21	28° Ź 57'40	
direct	2795 Aug 23 14:46	11° Ź 33'54			2803 Nov 12 18:35	0° Ź	
conjunction	2795 Dec 06 17:07	14° Ź 03'26	1°30'23	conjunction	2803 Dec 23 20:02	1° Ź 26'55	1°14'35
minimum elong	2795 Dec 06 17:08	14° Ź 03'26	1°30'22	minimum elong	2803 Dec 23 20:02	1° Ź 26'55	1°14'35
max. Earth dist.	2795 Dec 06 00:25	14° Ź 01'52	31.33043 AU	max. Earth dist.	2803 Dec 23 08:41	1° Ź 25'51	31.29868 AU
retrograde	2796 Mar 18 01:06	16° Ź 30'18		retrograde	2804 Apr 04 16:35	3° Ź 54'43	
opposition	2796 Jun 04 21:07	15° Ź 08'10	1°35'45	opposition	2804 Jun 22 23:07	2° Ź 32'26	1°18'22
min. Earth dist.	2796 Jun 05 12:04	15° Ź 07'09	29.32966 AU	min. Earth dist.	2804 Jun 23 10:42	2° Ź 31'39	29.29507 AU
direct	2796 Aug 25 01:55	13° Ź 43'53		direct	2804 Sep 11 21:38	1° Ź 08'35	
max. Earth dist.	2796 Dec 07 10:57	16° Ź 11'54	31.32736 AU				
				conjunction	2804 Dec 25 05:21	3° Ź 37'44	1°12'06

minimum elong	2804 Dec 25 05:21	3°☾37'44	1°12'07	opposition	2813 Jul 13 16:45	22°☾11'00	0°50'22
max. Earth dist.	2804 Dec 24 18:05	3°☾36'41	31.29020 AU	min. Earth dist.	2813 Jul 13 20:35	22°☾10'45	29.22788 AU
retrograde	2805 Apr 07 02:56	6°☾05'38		direct	2813 Oct 02 03:25	20°☾47'29	
opposition	2805 Jun 25 11:34	4°☾43'17	1°15'40				
min. Earth dist.	2805 Jun 25 21:25	4°☾42'37	29.28616 AU	conjunction	2814 Jan 13 16:40	23°☾16'11	0°45'29
direct	2805 Sep 14 09:28	3°☾19'26		minimum elong	2814 Jan 13 16:40	23°☾16'11	0°45'28
				max. Earth dist.	2814 Jan 13 13:20	23°☾15'52	31.22380 AU
conjunction	2805 Dec 27 14:31	5°☾48'30	1°09'31	retrograde	2814 Apr 27 09:19	25°☾45'20	
minimum elong	2805 Dec 27 14:31	5°☾48'30	1°09'30	opposition	2814 Jul 16 05:39	24°☾22'33	0°46'48
max. Earth dist.	2805 Dec 27 04:15	5°☾47'32	31.28108 AU	min. Earth dist.	2814 Jul 16 07:51	24°☾22'24	29.21972 AU
retrograde	2806 Apr 09 12:27	8°☾16'31		direct	2814 Oct 04 15:23	22°☾59'03	
opposition	2806 Jun 28 00:11	6°☾54'04	1°12'51				
min. Earth dist.	2806 Jun 28 10:13	6°☾53'24	29.27706 AU	conjunction	2815 Jan 16 02:17	25°☾27'44	0°42'08
direct	2806 Sep 16 20:01	5°☾30'13		minimum elong	2815 Jan 16 02:17	25°☾27'44	0°42'08
				max. Earth dist.	2815 Jan 15 23:25	25°☾27'27	31.21489 AU
conjunction	2806 Dec 29 23:47	7°☾59'12	1°06'50	retrograde	2815 Apr 29 19:49	27°☾57'02	
minimum elong	2806 Dec 29 23:47	7°☾59'12	1°06'50	opposition	2815 Jul 18 18:37	26°☾34'11	0°43'11
max. Earth dist.	2806 Dec 29 14:37	7°☾58'20	31.27221 AU	min. Earth dist.	2815 Jul 18 21:19	26°☾34'00	29.21012 AU
retrograde	2807 Apr 11 22:56	10°☾27'19		direct	2815 Oct 07 02:23	25°☾10'43	
opposition	2807 Jun 30 12:27	9°☾04'48	1°09'56				
min. Earth dist.	2807 Jun 30 20:38	9°☾04'15	29.26837 AU	conjunction	2816 Jan 18 11:57	27°☾39'20	0°38'42
direct	2807 Sep 19 06:49	7°☾40'57		minimum elong	2816 Jan 18 11:57	27°☾39'20	0°38'42
				max. Earth dist.	2816 Jan 18 09:55	27°☾39'09	31.20463 AU
conjunction	2808 Jan 01 08:58	10°☾09'53	1°04'03		2816 Apr 08 07:23	0°≈	
minimum elong	2808 Jan 01 08:58	10°☾09'53	1°04'02	retrograde	2816 May 01 07:01	0°≈08'47	
max. Earth dist.	2808 Jan 01 00:14	10°☾09'03	31.26392 AU		2816 May 24 19:15	30°☾	
retrograde	2808 Apr 13 10:34	12°☾38'07		opposition	2816 Jul 20 07:37	28°☾45'51	0°39'30
opposition	2808 Jul 02 01:04	11°☾15'32	1°06'54	min. Earth dist.	2816 Jul 20 08:48	28°☾45'46	29.19902 AU
min. Earth dist.	2808 Jul 02 08:56	11°☾15'00	29.26060 AU	direct	2816 Oct 08 14:14	27°☾22'23	
direct	2808 Sep 20 17:00	9°☾51'44					
				conjunction	2817 Jan 19 21:23	29°☾50'56	0°35'14
conjunction	2809 Jan 02 18:09	12°☾20'35	1°01'10	minimum elong	2817 Jan 19 21:23	29°☾50'56	0°35'15
minimum elong	2809 Jan 02 18:09	12°☾20'35	1°01'11	max. Earth dist.	2817 Jan 19 19:22	29°☾50'45	31.19294 AU
max. Earth dist.	2809 Jan 02 11:22	12°☾19'57	31.25664 AU		2817 Jan 23 21:03	0°≈	
retrograde	2809 Apr 15 22:02	14°☾48'58		retrograde	2817 May 03 18:54	2°≈20'32	
opposition	2809 Jul 04 13:41	13°☾26'21	1°03'47	opposition	2817 Jul 22 20:47	0°≈57'30	0°35'45
min. Earth dist.	2809 Jul 04 20:04	13°☾25'55	29.25362 AU	min. Earth dist.	2817 Jul 22 22:03	0°≈57'25	29.18686 AU
direct	2809 Sep 23 05:13	12°☾02'35			2817 Aug 30 20:57	30°☾	
				direct	2817 Oct 11 00:43	29°☾34'02	
conjunction	2810 Jan 05 03:18	14°☾31'24	0°58'12		2817 Nov 19 19:34	0°≈	
minimum elong	2810 Jan 05 03:18	14°☾31'24	0°58'12				
max. Earth dist.	2810 Jan 04 20:28	14°☾30'46	31.25013 AU	conjunction	2818 Jan 22 07:01	2°≈02'31	0°31'42
retrograde	2810 Apr 18 11:04	16°☾59'56		minimum elong	2818 Jan 22 07:01	2°≈02'31	0°31'42
opposition	2810 Jul 07 02:14	15°☾37'16	1°00'33	max. Earth dist.	2818 Jan 22 06:43	2°≈02'29	31.18044 AU
min. Earth dist.	2810 Jul 07 07:42	15°☾36'54	29.24742 AU	retrograde	2818 May 06 06:09	4°≈32'14	
direct	2810 Sep 25 14:59	14°☾13'34		opposition	2818 Jul 25 09:39	3°≈09'06	0°31'58
				min. Earth dist.	2818 Jul 25 09:43	3°≈09'06	29.17409 AU
conjunction	2811 Jan 07 12:37	16°☾42'22	0°55'08	direct	2818 Oct 13 12:47	1°≈45'37	
minimum elong	2811 Jan 07 12:37	16°☾42'22	0°55'09				
max. Earth dist.	2811 Jan 07 07:41	16°☾41'54	31.24407 AU	conjunction	2819 Jan 24 16:27	4°≈14'02	0°28'08
retrograde	2811 Apr 20 21:36	19°☾11'02		minimum elong	2819 Jan 24 16:27	4°≈14'02	0°28'09
opposition	2811 Jul 09 14:59	17°☾48'21	0°57'15	max. Earth dist.	2819 Jan 24 15:59	4°≈14'00	31.16772 AU
min. Earth dist.	2811 Jul 09 19:56	17°☾48'01	29.24128 AU	retrograde	2819 May 08 19:13	6°≈43'54	
direct	2811 Sep 28 03:14	16°☾24'43		opposition	2819 Jul 27 22:38	5°≈20'40	0°28'07
				min. Earth dist.	2819 Jul 27 21:47	5°≈20'43	29.16159 AU
conjunction	2812 Jan 09 21:49	18°☾53'29	0°52'00	direct	2819 Oct 15 22:35	3°≈57'10	
minimum elong	2812 Jan 09 21:49	18°☾53'29	0°51'59				
max. Earth dist.	2812 Jan 09 16:45	18°☾53'00	31.23795 AU	conjunction	2820 Jan 27 01:58	6°≈25'33	0°24'32
retrograde	2812 Apr 22 10:41	21°☾22'19		minimum elong	2820 Jan 27 01:58	6°≈25'33	0°24'31
opposition	2812 Jul 11 03:43	19°☾59'36	0°53'50	max. Earth dist.	2820 Jan 27 03:33	6°≈25'42	31.15544 AU
min. Earth dist.	2812 Jul 11 07:19	19°☾59'21	29.23495 AU	retrograde	2820 May 10 06:12	8°≈55'34	
direct	2812 Sep 29 15:21	18°☾36'01		opposition	2820 Jul 29 11:39	7°≈32'14	0°24'15
				min. Earth dist.	2820 Jul 29 09:57	7°≈32'21	29.14970 AU
conjunction	2813 Jan 11 07:17	21°☾04'46	0°48'47	direct	2820 Oct 17 10:56	6°≈08'46	
minimum elong	2813 Jan 11 07:17	21°☾04'46	0°48'47				
max. Earth dist.	2813 Jan 11 03:43	21°☾04'26	31.23128 AU	conjunction	2821 Jan 28 11:27	8°≈37'07	0°20'53
retrograde	2813 Apr 24 21:58	23°☾33'46		minimum elong	2821 Jan 28 11:27	8°≈37'07	0°20'54

max. Earth dist.	2821 Jan 28 13:13	8°37'16"	31.14417 AU	min. Earth dist.	2827 Aug 14 23:23	22°58'17"	29.08270 AU
retrograde	2821 May 12 20:10	11°07'17"		direct	2827 Nov 02 18:58	21°34'34"	
opposition	2821 Aug 01 00:38	9°43'54"	0°20'19"				
min. Earth dist.	2821 Jul 31 21:13	9°44'07"	29.13899 AU	conjunction	2828 Feb 13 08:11	24°02'53"	0°-5'-23"
direct	2821 Oct 19 22:47	8°20'27"		minimum elong	2828 Feb 13 08:11	24°02'53"	0°05'24"
				behind sun begin	2828 Feb 13 02:00	24°02'19"	
conjunction	2822 Jan 30 21:01	10°48'47"	0°17'13"	behind sun end	2828 Feb 13 14:22	24°03'26"	
minimum elong	2822 Jan 30 21:02	10°48'47"	0°17'12"	max. Earth dist.	2828 Feb 13 15:27	24°03'33"	31.07706 AU
max. Earth dist.	2822 Jan 31 00:33	10°49'07"	31.13388 AU	retrograde	2828 May 28 08:25	26°34'21"	
retrograde	2822 May 15 08:04	13°19'09"		opposition	2828 Aug 16 20:36	25°10'36"	0°-7'-43"
opposition	2822 Aug 03 13:43	11°55'42"	0°16'22"	min. Earth dist.	2828 Aug 16 12:16	25°11'10"	29.07123 AU
min. Earth dist.	2822 Aug 03 10:09	11°55'57"	29.12914 AU	direct	2828 Nov 04 04:31	23°47'25"	
direct	2822 Oct 22 10:30	10°32'18"					
				conjunction	2829 Feb 14 18:30	26°15'42"	0°-9'-7"
conjunction	2823 Feb 02 06:39	13°00'38"	0°13'30"	minimum elong	2829 Feb 14 18:30	26°15'42"	0°09'08"
minimum elong	2823 Feb 02 06:39	13°00'38"	0°13'31"	behind sun begin	2829 Feb 14 13:02	26°15'12"	
behind sun begin	2823 Feb 02 02:59	13°00'18"		behind sun end	2829 Feb 14 23:58	26°16'11"	
behind sun end	2823 Feb 02 10:20	13°00'58"		max. Earth dist.	2829 Feb 15 03:16	26°16'31"	31.06497 AU
max. Earth dist.	2823 Feb 02 10:51	13°01'01"	31.12452 AU	retrograde	2829 May 30 20:08	28°47'19"	
	2823 Apr 03 21:12	15°		opposition	2829 Aug 19 09:52	27°23'28"	0°-11'-44"
retrograde	2823 May 17 19:56	15°31'11"		min. Earth dist.	2829 Aug 19 01:11	27°24'03"	29.05862 AU
	2823 Jul 02 08:51	15°		direct	2829 Nov 06 17:09	26°00'16"	
opposition	2823 Aug 06 02:33	14°07'42"	0°12'23"				
min. Earth dist.	2823 Aug 05 21:02	14°08'04"	29.12002 AU	conjunction	2830 Feb 17 04:38	28°28'29"	0°-12'-51"
direct	2823 Oct 24 22:20	12°44'21"		minimum elong	2830 Feb 17 04:38	28°28'29"	0°12'53"
	2824 Jan 30 02:36	15°		behind sun begin	2830 Feb 17 00:36	28°28'07"	
				behind sun end	2830 Feb 17 08:39	28°28'50"	
conjunction	2824 Feb 04 16:22	15°12'41"	0°09'47"	max. Earth dist.	2830 Feb 17 13:12	28°29'16"	31.05208 AU
minimum elong	2824 Feb 04 16:23	15°12'41"	0°09'46"		2830 Apr 01 07:32	0°	
behind sun begin	2824 Feb 04 11:06	15°12'13"		retrograde	2830 Jun 02 10:37	1°00'13"	
behind sun end	2824 Feb 04 21:40	15°13'10"			2830 Aug 07 05:23	30°	
max. Earth dist.	2824 Feb 04 21:23	15°13'09"	31.11558 AU	opposition	2830 Aug 21 23:02	29°36'15"	0°-15'-43"
retrograde	2824 May 19 07:24	17°43'26"		min. Earth dist.	2830 Aug 21 13:09	29°36'55"	29.04548 AU
opposition	2824 Aug 07 15:47	16°19'55"	0°08'23"	direct	2830 Nov 09 04:47	28°13'00"	
min. Earth dist.	2824 Aug 07 10:24	16°20'17"	29.11126 AU		2831 Feb 01 07:47	0°	
	2824 Oct 12 00:55	15°					
direct	2824 Oct 26 09:29	14°56'38"		conjunction	2831 Feb 19 14:52	0°41'11"	0°-16'-35"
	2824 Nov 09 12:09	15°		minimum elong	2831 Feb 19 14:52	0°41'11"	0°16'35"
				max. Earth dist.	2831 Feb 20 00:48	0°42'06"	31.03875 AU
conjunction	2825 Feb 06 02:08	17°24'58"	0°06'03"	retrograde	2831 Jun 04 22:13	3°13'02"	
minimum elong	2825 Feb 06 02:07	17°24'58"	0°06'03"	opposition	2831 Aug 24 12:10	1°48'56"	0°-19'-42"
behind sun begin	2825 Feb 05 20:01	17°24'25"		min. Earth dist.	2831 Aug 24 02:23	1°49'36"	29.03231 AU
behind sun end	2825 Feb 06 08:12	17°25'31"		direct	2831 Nov 11 16:23	0°25'40"	
max. Earth dist.	2825 Feb 06 08:26	17°25'32"	31.10690 AU				
retrograde	2825 May 21 19:29	19°55'54"		conjunction	2832 Feb 22 01:05	2°53'48"	0°-20'-17"
opposition	2825 Aug 10 04:54	18°32'21"	0°04'22"	minimum elong	2832 Feb 22 01:05	2°53'48"	0°20'18"
min. Earth dist.	2825 Aug 09 21:48	18°32'50"	29.10240 AU	max. Earth dist.	2832 Feb 22 11:45	2°54'48"	31.02597 AU
direct	2825 Oct 28 21:23	17°09'07"		retrograde	2832 Jun 06 11:22	5°25'46"	
				opposition	2832 Aug 26 01:16	4°01'35"	0°-23'-39"
conjunction	2826 Feb 08 12:01	19°37'26"	0°02'17"	min. Earth dist.	2832 Aug 25 13:30	4°02'23"	29.01999 AU
minimum elong	2826 Feb 08 12:01	19°37'26"	0°02'16"	direct	2832 Nov 13 04:58	2°38'17"	
behind sun begin	2826 Feb 08 05:38	19°36'52"					
behind sun end	2826 Feb 08 18:25	19°38'01"		conjunction	2833 Feb 23 11:14	5°06'23"	0°-23'-57"
max. Earth dist.	2826 Feb 08 18:19	19°38'01"	31.09780 AU	minimum elong	2833 Feb 23 11:14	5°06'23"	0°23'57"
retrograde	2826 May 24 07:32	22°08'34"		max. Earth dist.	2833 Feb 23 22:42	5°07'28"	31.01408 AU
opposition	2826 Aug 12 18:03	20°44'58"	0°00'20"	retrograde	2833 Jun 08 23:51	7°38'30"	
min. Earth dist.	2826 Aug 12 11:11	20°45'26"	29.09309 AU	opposition	2833 Aug 28 14:30	6°14'13"	0°-27'-34"
desc. node	2826 Sep 12 07:23	19°58'02"		min. Earth dist.	2833 Aug 28 02:45	6°15'01"	29.00881 AU
direct	2826 Oct 31 07:23	19°21'47"		direct	2833 Nov 15 16:44	4°50'56"	
conjunction	2827 Feb 10 22:10	21°50'06"	0°-1'-35"	conjunction	2834 Feb 25 21:39	7°19'01"	0°-27'-36"
minimum elong	2827 Feb 10 22:11	21°50'06"	0°01'36"	minimum elong	2834 Feb 25 21:39	7°19'01"	0°27'37"
behind sun begin	2827 Feb 10 15:47	21°49'31"		max. Earth dist.	2834 Feb 26 10:36	7°20'14"	31.00356 AU
behind sun end	2827 Feb 11 04:35	21°50'41"		retrograde	2834 Jun 11 12:15	9°51'17"	
max. Earth dist.	2827 Feb 11 06:01	21°50'49"	31.08800 AU	opposition	2834 Aug 31 03:21	8°26'56"	0°-31'-26"
retrograde	2827 May 26 18:49	24°21'24"		min. Earth dist.	2834 Aug 30 13:42	8°27'52"	28.99890 AU
opposition	2827 Aug 15 07:15	22°57'45"	0°-3'-41"	direct	2834 Nov 18 05:09	7°03'39"	

conjunction	2835 Feb 28 08:00	9° ✕ 31'45	0°-31'-12	retrograde	2843 Jul 02 11:25	29° ✕ 54'44	
minimum elong	2835 Feb 28 08:00	9° ✕ 31'45	0°31'12	min. Earth dist.	2843 Sep 20 07:36	28° ✕ 31'13	28.92004 AU
max. Earth dist.	2835 Feb 28 21:04	9° ✕ 32'59	30.99422 AU	opposition	2843 Sep 21 01:40	28° ✕ 29'58	-1°-3'-43
retrograde	2835 Jun 14 00:21	12° ✕ 04'12		direct	2843 Dec 08 11:53	27° ✕ 06'52	
opposition	2835 Sep 02 16:32	10° ✕ 39'48	0°-35'-17				
min. Earth dist.	2835 Sep 02 02:49	10° ✕ 40'44	28.99021 AU	conjunction	2844 Mar 19 10:51	29° ✕ 35'07	-1°-1'-5
direct	2835 Nov 20 15:08	9° ✕ 16'34		minimum elong	2844 Mar 19 10:51	29° ✕ 35'07	1°01'06
				max. Earth dist.	2844 Mar 20 04:36	29° ✕ 36'48	30.91420 AU
conjunction	2836 Mar 01 18:28	11° ✕ 44'40	0°-34'-46		2844 Mar 30 09:54	0° Υ	
minimum elong	2836 Mar 01 18:28	11° ✕ 44'40	0°34'47	retrograde	2844 Jul 03 23:37	2° Υ 08'55	
max. Earth dist.	2836 Mar 02 09:30	11° ✕ 46'05	30.98598 AU	opposition	2844 Sep 22 14:49	0° Υ 44'03	-1°-6'-54
retrograde	2836 Jun 15 11:48	14° ✕ 17'17		min. Earth dist.	2844 Sep 21 21:03	0° Υ 45'17	28.90954 AU
opposition	2836 Sep 04 05:40	12° ✕ 52'52	0°-39'-4		2844 Oct 20 15:19	30° R ✕	
min. Earth dist.	2836 Sep 03 14:38	12° ✕ 53'53	28.98235 AU	direct	2844 Dec 09 22:44	29° ✕ 20'55	
direct	2836 Nov 22 02:44	11° ✕ 29'41			2845 Jan 27 04:50	0° Υ	
conjunction	2837 Mar 04 05:02	13° ✕ 57'48	0°-38'-17	conjunction	2845 Mar 21 22:20	1° Υ 49'10	-1°-4'-1
minimum elong	2837 Mar 04 05:02	13° ✕ 57'48	0°38'17	minimum elong	2845 Mar 21 22:19	1° Υ 49'10	1°04'01
max. Earth dist.	2837 Mar 04 19:46	13° ✕ 59'12	30.97848 AU	max. Earth dist.	2845 Mar 22 17:48	1° Υ 51'01	30.90404 AU
retrograde	2837 Jun 18 01:56	16° ✕ 30'37		retrograde	2845 Jul 06 11:27	4° Υ 23'03	
opposition	2837 Sep 06 18:48	15° ✕ 06'10	0°-42'-48	min. Earth dist.	2845 Sep 24 08:46	2° Υ 59'25	28.89990 AU
min. Earth dist.	2837 Sep 06 03:17	15° ✕ 07'14	28.97516 AU	opposition	2845 Sep 25 03:39	2° Υ 58'07	-1°-9'-59
direct	2837 Nov 24 11:51	13° ✕ 43'02		direct	2845 Dec 12 11:21	1° Υ 34'57	
conjunction	2838 Mar 06 15:53	16° ✕ 11'13	0°-41'-45	conjunction	2846 Mar 24 09:43	4° Υ 03'12	-1°-6'-51
minimum elong	2838 Mar 06 15:53	16° ✕ 11'13	0°41'47	minimum elong	2846 Mar 24 09:42	4° Υ 03'12	1°06'52
max. Earth dist.	2838 Mar 07 08:12	16° ✕ 12'45	30.97124 AU	max. Earth dist.	2846 Mar 25 04:43	4° Υ 05'01	30.89496 AU
retrograde	2838 Jun 20 14:05	18° ✕ 44'13		retrograde	2846 Jul 09 01:14	6° Υ 37'12	
opposition	2838 Sep 09 07:58	17° ✕ 19'45	0°-46'-28	opposition	2846 Sep 27 16:35	5° Υ 12'11	-1°-12'-58
min. Earth dist.	2838 Sep 08 16:09	17° ✕ 20'50	28.96784 AU	min. Earth dist.	2846 Sep 26 21:19	5° Υ 13'31	28.89154 AU
direct	2838 Nov 26 23:44	15° ✕ 56'40		direct	2846 Dec 14 21:24	3° Υ 49'01	
conjunction	2839 Mar 09 02:46	18° ✕ 24'52	0°-45'-9	conjunction	2847 Mar 26 21:14	6° Υ 17'17	-1°-9'-35
minimum elong	2839 Mar 09 02:46	18° ✕ 24'52	0°45'10	minimum elong	2847 Mar 26 21:14	6° Υ 17'17	1°09'35
max. Earth dist.	2839 Mar 09 18:43	18° ✕ 26'23	30.96376 AU	max. Earth dist.	2847 Mar 27 17:51	6° Υ 19'14	30.88709 AU
retrograde	2839 Jun 23 05:12	20° ✕ 58'03		retrograde	2847 Jul 11 12:07	8° Υ 51'23	
opposition	2839 Sep 11 21:04	19° ✕ 33'34	0°-50'-5	min. Earth dist.	2847 Sep 29 09:40	7° Υ 27'42	28.88431 AU
min. Earth dist.	2839 Sep 11 04:23	19° ✕ 34'42	28.96011 AU	opposition	2847 Sep 30 05:27	7° Υ 26'20	-1°-15'-51
direct	2839 Nov 29 10:28	18° ✕ 10'30		direct	2847 Dec 17 09:20	6° Υ 03'10	
conjunction	2840 Mar 10 13:55	20° ✕ 38'46	0°-48'-29	conjunction	2848 Mar 28 08:48	8° Υ 31'27	-1°-12'-13
minimum elong	2840 Mar 10 13:54	20° ✕ 38'46	0°48'31	minimum elong	2848 Mar 28 08:48	8° Υ 31'27	1°12'15
max. Earth dist.	2840 Mar 11 06:46	20° ✕ 40'22	30.95548 AU	max. Earth dist.	2848 Mar 29 05:13	8° Υ 33'23	30.88056 AU
retrograde	2840 Jun 24 17:43	23° ✕ 12'07		retrograde	2848 Jul 13 02:22	11° Υ 05'40	
opposition	2840 Sep 13 10:23	21° ✕ 47'34	0°-53'-37	opposition	2848 Oct 01 18:20	9° Υ 40'35	-1°-18'-36
min. Earth dist.	2840 Sep 12 18:13	21° ✕ 48'41	28.95140 AU	min. Earth dist.	2848 Sep 30 21:32	9° Υ 42'01	28.87841 AU
direct	2840 Nov 30 21:23	20° ✕ 24'32		direct	2848 Dec 18 19:19	8° Υ 17'25	
conjunction	2841 Mar 13 01:06	22° ✕ 52'49	0°-51'-45	conjunction	2849 Mar 30 20:31	10° Υ 45'45	-1°-14'-45
minimum elong	2841 Mar 13 01:06	22° ✕ 52'49	0°51'46	minimum elong	2849 Mar 30 20:31	10° Υ 45'45	1°14'45
max. Earth dist.	2841 Mar 13 18:03	22° ✕ 54'25	30.94630 AU	max. Earth dist.	2849 Mar 31 18:03	10° Υ 47'47	30.87501 AU
retrograde	2841 Jun 27 08:30	25° ✕ 26'17		retrograde	2849 Jul 15 14:48	13° Υ 20'05	
opposition	2841 Sep 15 23:34	24° ✕ 01'42	0°-57'-4	min. Earth dist.	2849 Oct 03 10:54	11° Υ 56'23	28.87327 AU
min. Earth dist.	2841 Sep 15 06:11	24° ✕ 02'53	28.94164 AU	opposition	2849 Oct 04 07:16	11° Υ 54'59	-1°-21'-15
direct	2841 Dec 03 10:19	22° ✕ 38'39		direct	2849 Dec 21 05:41	10° Υ 31'50	
conjunction	2842 Mar 15 12:23	25° ✕ 06'56	0°-54'-57	conjunction	2850 Apr 02 08:27	13° Υ 00'13	-1°-17'-9
minimum elong	2842 Mar 15 12:23	25° ✕ 06'56	0°54'58	minimum elong	2850 Apr 02 08:27	13° Υ 00'13	1°17'11
max. Earth dist.	2842 Mar 16 05:21	25° ✕ 08'33	30.93595 AU	max. Earth dist.	2850 Apr 03 06:10	13° Υ 02'16	30.87021 AU
retrograde	2842 Jun 29 22:19	27° ✕ 40'32		retrograde	2850 Jul 18 05:47	15° Υ 34'39	
opposition	2842 Sep 18 12:39	26° ✕ 15'51	-1°00'-26	opposition	2850 Oct 06 19:56	14° Υ 09'32	-1°-23'-46
min. Earth dist.	2842 Sep 17 20:02	26° ✕ 16'59	28.93099 AU	min. Earth dist.	2850 Oct 05 22:28	14° Υ 11'02	28.86862 AU
direct	2842 Dec 05 22:36	24° ✕ 52'47		direct	2850 Dec 23 18:06	12° Υ 46'25	
conjunction	2843 Mar 17 23:44	27° ✕ 21'03	0°-58'-3	conjunction	2851 Apr 04 20:28	15° Υ 14'51	-1°-19'-27
minimum elong	2843 Mar 17 23:44	27° ✕ 21'03	0°58'04	minimum elong	2851 Apr 04 20:28	15° Υ 14'51	1°19'28
max. Earth dist.	2843 Mar 18 17:41	27° ✕ 22'45	30.92510 AU	max. Earth dist.	2851 Apr 05 18:11	15° Υ 16'55	30.86545 AU

retrograde	2851 Jul 20 19:50	17° Υ 49'24		retrograde	2859 Aug 08 05:38	5° ♄ 49'01	
opposition	2851 Oct 09 08:55	16° Υ 24'17	-1°-26'-9	opposition	2859 Oct 27 13:48	4° ♄ 23'33	-1°-40'-20
min. Earth dist.	2851 Oct 08 12:23	16° Υ 25'42	28.86385 AU	min. Earth dist.	2859 Oct 26 16:01	4° ♄ 25'05	28.81000 AU
direct	2851 Dec 26 05:35	15° Υ 01'10		direct	2860 Jan 13 03:58	3° ♄ 00'10	
conjunction	2852 Apr 06 08:38	17° Υ 29'40	-1°-21'-38	conjunction	2860 Apr 24 12:47	5° ♄ 28'57	-1°-34'-21
minimum elong	2852 Apr 06 08:38	17° Υ 29'40	1°21'39	minimum elong	2860 Apr 24 12:47	5° ♄ 28'57	1°34'22
max. Earth dist.	2852 Apr 07 06:58	17° Υ 31'47	30.86043 AU	max. Earth dist.	2860 Apr 25 11:25	5° ♄ 31'05	30.80703 AU
retrograde	2852 Jul 22 10:01	20° Υ 04'19		retrograde	2860 Aug 09 18:44	8° ♄ 03'57	
opposition	2852 Oct 10 21:46	18° Υ 39'11	-1°-28'-25	min. Earth dist.	2860 Oct 28 05:15	6° ♄ 39'57	28.80661 AU
min. Earth dist.	2852 Oct 10 00:15	18° Υ 40'40	28.85842 AU	opposition	2860 Oct 29 02:15	6° ♄ 38'28	-1°-41'-26
direct	2852 Dec 27 18:41	17° Υ 16'04		direct	2861 Jan 14 14:56	5° ♄ 15'04	
conjunction	2853 Apr 08 21:00	19° Υ 44'37	-1°-23'-41	conjunction	2861 Apr 27 01:41	7° ♄ 43'55	-1°-35'-19
minimum elong	2853 Apr 08 20:59	19° Υ 44'36	1°23'41	minimum elong	2861 Apr 27 01:41	7° ♄ 43'55	1°35'19
max. Earth dist.	2853 Apr 09 18:24	19° Υ 46'38	30.85445 AU	max. Earth dist.	2861 Apr 28 00:59	7° ♄ 46'07	30.80440 AU
retrograde	2853 Jul 24 23:57	22° Υ 19'20		retrograde	2861 Aug 12 08:56	10° ♄ 18'57	
opposition	2853 Oct 13 10:38	20° Υ 54'10	-1°-30'-33	opposition	2861 Oct 31 14:20	8° ♄ 53'30	-1°-42'-23
min. Earth dist.	2853 Oct 12 14:09	20° Υ 55'35	28.85200 AU	min. Earth dist.	2861 Oct 30 16:15	8° ♄ 55'03	28.80457 AU
direct	2853 Dec 30 05:54	19° Υ 31'02		direct	2862 Jan 17 03:23	7° ♄ 30'06	
conjunction	2854 Apr 11 09:35	21° Υ 59'37	-1°-25'-36	conjunction	2862 Apr 29 14:34	9° ♄ 59'02	-1°-36'-8
minimum elong	2854 Apr 11 09:35	21° Υ 59'37	1°25'38	minimum elong	2862 Apr 29 14:34	9° ♄ 59'02	1°36'09
max. Earth dist.	2854 Apr 12 07:53	22° Υ 01'43	30.84745 AU	max. Earth dist.	2862 Apr 30 13:09	10° ♄ 01'10	30.80289 AU
retrograde	2854 Jul 27 13:20	24° Υ 34'23		retrograde	2862 Aug 14 23:31	12° ♄ 34'07	
opposition	2854 Oct 15 23:22	23° Υ 09'10	-1°-32'-32	min. Earth dist.	2862 Nov 02 05:30	11° ♄ 10'10	28.80361 AU
min. Earth dist.	2854 Oct 15 02:26	23° Υ 10'37	28.84446 AU	opposition	2862 Nov 03 02:41	11° ♄ 08'41	-1°-43'-11
direct	2855 Jan 01 19:23	21° Υ 46'00		direct	2863 Jan 19 14:40	9° ♄ 45'17	
conjunction	2855 Apr 13 21:52	24° Υ 14'36	-1°-27'-24	conjunction	2863 May 02 03:34	12° ♄ 14'18	-1°-36'-48
minimum elong	2855 Apr 13 21:52	24° Υ 14'36	1°27'25	minimum elong	2863 May 02 03:34	12° ♄ 14'18	1°36'49
max. Earth dist.	2855 Apr 14 19:04	24° Υ 16'36	30.83956 AU	max. Earth dist.	2863 May 03 03:13	12° ♄ 16'32	30.80226 AU
retrograde	2855 Jul 30 02:51	26° Υ 49'25		retrograde	2863 Aug 17 14:03	14° ♄ 49'25	
opposition	2855 Oct 18 12:07	25° Υ 24'08	-1°-34'-23	opposition	2863 Nov 05 14:53	13° ♄ 24'01	-1°-43'-49
min. Earth dist.	2855 Oct 17 15:31	25° Υ 25'34	28.83642 AU	min. Earth dist.	2863 Nov 04 17:16	13° ♄ 25'32	28.80312 AU
direct	2856 Jan 04 06:21	24° Υ 00'55		direct	2864 Jan 22 04:26	12° ♄ 00'38	
conjunction	2856 Apr 15 10:28	26° Υ 29'31	-1°-29'-4	conjunction	2864 May 03 16:43	14° ♄ 29'44	-1°-37'-19
minimum elong	2856 Apr 15 10:28	26° Υ 29'31	1°29'06	minimum elong	2864 May 03 16:43	14° ♄ 29'44	1°37'20
max. Earth dist.	2856 Apr 16 08:45	26° Υ 31'38	30.83141 AU	max. Earth dist.	2864 May 04 15:04	14° ♄ 31'50	30.80187 AU
retrograde	2856 Jul 31 13:56	29° Υ 04'23			2864 May 17 03:04	15° ♄	
min. Earth dist.	2856 Oct 19 04:01	27° Υ 40'28	28.82839 AU	retrograde	2864 Aug 19 03:47	17° ♄ 04'52	
opposition	2856 Oct 20 00:40	27° Υ 39'02	-1°-36'-6	min. Earth dist.	2864 Nov 06 06:14	15° ♄ 40'57	28.80274 AU
direct	2857 Jan 05 18:45	26° Υ 15'46		opposition	2864 Nov 07 03:07	15° ♄ 39'30	-1°-44'-17
conjunction	2857 Apr 17 22:56	28° Υ 44'23	-1°-30'-36		2864 Dec 01 13:16	15° ♄	
minimum elong	2857 Apr 17 22:55	28° Υ 44'23	1°30'37	direct	2865 Jan 23 15:18	14° ♄ 16'06	
max. Earth dist.	2857 Apr 18 20:32	28° Υ 46'26	30.82370 AU		2865 Mar 15 21:00	15° ♄	
	2857 May 22 16:46	0° ♄		conjunction	2865 May 06 06:12	16° ♄ 45'17	-1°-37'-41
retrograde	2857 Aug 03 03:49	1° ♄ 19'17		minimum elong	2865 May 06 06:12	16° ♄ 45'17	1°37'42
	2857 Oct 18 21:20	30° ♄		max. Earth dist.	2865 May 07 05:08	16° ♄ 47'27	30.80115 AU
opposition	2857 Oct 22 13:08	29° Υ 53'53	-1°-37'-39	retrograde	2865 Aug 21 16:19	19° ♄ 20'25	
min. Earth dist.	2857 Oct 21 15:56	29° Υ 55'21	28.82111 AU	opposition	2865 Nov 09 15:20	17° ♄ 55'03	-1°-44'-36
direct	2858 Jan 08 05:09	28° Υ 30'33		min. Earth dist.	2865 Nov 08 18:54	17° ♄ 56'29	28.80161 AU
	2858 Mar 24 16:49	0° ♄		direct	2866 Jan 26 04:09	16° ♄ 31'39	
conjunction	2858 Apr 20 11:35	0° ♄ 59'13	-1°-31'-59	conjunction	2866 May 08 19:37	19° ♄ 00'52	-1°-37'-54
minimum elong	2858 Apr 20 11:35	0° ♄ 59'13	1°32'00	minimum elong	2866 May 08 19:38	19° ♄ 00'52	1°37'55
max. Earth dist.	2858 Apr 21 10:02	1° ♄ 01'21	30.81676 AU	max. Earth dist.	2866 May 09 17:03	19° ♄ 02'53	30.79967 AU
retrograde	2858 Aug 05 15:29	3° ♄ 34'09		retrograde	2866 Aug 24 06:53	21° ♄ 35'59	
min. Earth dist.	2858 Oct 24 04:50	2° ♄ 10'09	28.81481 AU	min. Earth dist.	2866 Nov 11 07:05	20° ♄ 12'02	28.79973 AU
opposition	2858 Oct 25 01:29	2° ♄ 08'42	-1°-39'-4	opposition	2866 Nov 12 03:25	20° ♄ 10'37	-1°-44'-46
direct	2859 Jan 10 15:36	0° ♄ 45'20		direct	2867 Jan 28 15:15	18° ♄ 47'09	
conjunction	2859 Apr 23 00:13	3° ♄ 14'04	-1°-33'-14	conjunction	2867 May 11 09:09	21° ♄ 16'24	-1°-37'-59
minimum elong	2859 Apr 23 00:12	3° ♄ 14'04	1°33'15	minimum elong	2867 May 11 09:09	21° ♄ 16'24	1°38'00
max. Earth dist.	2859 Apr 23 22:42	3° ♄ 16'11	30.81121 AU	max. Earth dist.	2867 May 12 06:48	21° ♄ 18'27	30.79738 AU

retrograde	2867 Aug 26 18:01	23° ♄ 51'28		retrograde	2875 Sep 14 04:52	11° ♄ 51'50	
opposition	2867 Nov 14 15:32	22° ♄ 26'05	-1°-44'-46	opposition	2875 Dec 02 12:50	10° ♄ 26'34	-1°-39'-3
min. Earth dist.	2867 Nov 13 20:19	22° ♄ 27'26	28.79717 AU	min. Earth dist.	2875 Dec 01 19:02	10° ♄ 27'50	28.80537 AU
direct	2868 Jan 31 02:41	21° ♄ 02'33		direct	2876 Feb 18 01:56	9° ♄ 02'45	
conjunction	2868 May 12 22:34	23° ♄ 31'50	-1°-37'-54	conjunction	2876 May 31 11:42	11° ♄ 32'32	-1°-31'-59
minimum elong	2868 May 12 22:34	23° ♄ 31'50	1°37'56	minimum elong	2876 May 31 11:42	11° ♄ 32'32	1°32'00
max. Earth dist.	2868 May 13 19:33	23° ♄ 33'48	30.79482 AU	max. Earth dist.	2876 Jun 01 07:00	11° ♄ 34'21	30.80727 AU
retrograde	2868 Aug 28 06:59	26° ♄ 06'50		retrograde	2876 Sep 15 16:24	14° ♄ 07'05	
min. Earth dist.	2868 Nov 15 07:47	24° ♄ 42'48	28.79456 AU	min. Earth dist.	2876 Dec 03 07:53	12° ♄ 43'05	28.81105 AU
opposition	2868 Nov 16 03:28	24° ♄ 41'24	-1°-44'-36	opposition	2876 Dec 04 00:23	12° ♄ 41'55	-1°-37'-37
direct	2869 Feb 01 14:57	23° ♄ 17'48		direct	2877 Feb 19 13:15	11° ♄ 18'06	
conjunction	2869 May 15 12:06	25° ♄ 47'06	-1°-37'-41	conjunction	2877 Jun 03 01:49	13° ♄ 47'59	-1°-30'-35
minimum elong	2869 May 15 12:06	25° ♄ 47'06	1°37'42	minimum elong	2877 Jun 03 01:49	13° ♄ 47'59	1°30'36
max. Earth dist.	2869 May 16 08:44	25° ♄ 49'03	30.79227 AU	max. Earth dist.	2877 Jun 03 19:52	13° ♄ 49'41	30.81296 AU
retrograde	2869 Aug 30 18:49	28° ♄ 22'02		retrograde	2877 Sep 18 05:48	16° ♄ 22'28	
opposition	2869 Nov 18 15:16	26° ♄ 56'35	-1°-44'-17	opposition	2877 Dec 06 11:42	14° ♄ 57'23	-1°-36'-3
min. Earth dist.	2869 Nov 17 20:54	26° ♄ 57'52	28.79231 AU	min. Earth dist.	2877 Dec 05 19:12	14° ♄ 58'33	28.81644 AU
direct	2870 Feb 04 01:31	25° ♄ 32'53		direct	2878 Feb 22 00:55	13° ♄ 33'33	
conjunction	2870 May 18 01:42	28° ♄ 02'14	-1°-37'-19	conjunction	2878 Jun 05 16:00	16° ♄ 03'32	-1°-29'-3
minimum elong	2870 May 18 01:42	28° ♄ 02'14	1°37'20	minimum elong	2878 Jun 05 16:00	16° ♄ 03'32	1°29'04
max. Earth dist.	2870 May 18 22:28	28° ♄ 04'11	30.79049 AU	max. Earth dist.	2878 Jun 06 09:17	16° ♄ 05'10	30.81792 AU
retrograde	2870 Jul 16 04:08	0° ♄		retrograde	2878 Sep 20 18:00	18° ♄ 37'57	
min. Earth dist.	2870 Sep 02 08:16	0° ♄ 37'04		opposition	2878 Dec 08 23:18	17° ♄ 12'55	-1°-34'-20
opposition	2870 Oct 21 16:12	30° ♄		min. Earth dist.	2878 Dec 08 08:34	17° ♄ 13'58	28.82099 AU
direct	2870 Nov 20 07:45	29° ♄ 12'58	28.79099 AU	direct	2879 Feb 24 10:49	15° ♄ 49'04	
conjunction	2870 Nov 21 02:57	29° ♄ 11'37	-1°-43'-48	conjunction	2879 Jun 08 06:05	18° ♄ 19'06	-1°-27'-23
direct	2871 Feb 06 14:10	27° ♄ 47'51		minimum elong	2879 Jun 08 06:05	18° ♄ 19'06	1°27'24
conjunction	2871 May 12 23:38	0° ♄		max. Earth dist.	2879 Jun 08 22:42	18° ♄ 20'40	30.82214 AU
minimum elong	2871 May 20 15:01	0° ♄ 17'14	-1°-36'-48	retrograde	2879 Sep 23 06:49	20° ♄ 53'25	
max. Earth dist.	2871 May 20 15:01	0° ♄ 17'14	1°36'48	opposition	2879 Dec 11 10:41	19° ♄ 28'26	-1°-32'-29
retrograde	2871 May 21 10:57	0° ♄ 19'07	30.78974 AU	min. Earth dist.	2879 Dec 10 19:43	19° ♄ 29'29	28.82468 AU
opposition	2871 Sep 04 21:33	2° ♄ 52'01		direct	2880 Feb 26 23:26	18° ♄ 04'31	
min. Earth dist.	2871 Nov 23 14:45	1° ♄ 26'33	-1°-43'-10	conjunction	2880 Jun 09 20:15	20° ♄ 34'37	-1°-25'-35
direct	2871 Nov 22 20:32	1° ♄ 27'50	28.79100 AU	minimum elong	2880 Jun 09 20:15	20° ♄ 34'37	1°25'36
conjunction	2872 Feb 09 01:40	0° ♄ 02'45		max. Earth dist.	2880 Jun 10 11:22	20° ♄ 36'02	30.82551 AU
minimum elong	2872 May 22 04:41	2° ♄ 32'11	-1°-36'-8	retrograde	2880 Sep 24 19:04	23° ♄ 08'48	
max. Earth dist.	2872 May 22 04:41	2° ♄ 32'11	1°36'09	opposition	2880 Dec 12 22:00	21° ♄ 43'50	-1°-30'-29
retrograde	2872 May 23 01:29	2° ♄ 34'08	30.79051 AU	min. Earth dist.	2880 Dec 12 08:42	21° ♄ 44'46	28.82784 AU
min. Earth dist.	2872 Sep 06 11:05	5° ♄ 06'54		direct	2881 Feb 28 11:04	20° ♄ 19'51	
opposition	2872 Nov 24 07:34	3° ♄ 42'46	28.79247 AU	conjunction	2881 Jun 12 10:33	22° ♄ 50'00	-1°-23'-39
direct	2872 Nov 25 02:14	3° ♄ 41'27	-1°-42'-23	minimum elong	2881 Jun 12 10:33	22° ♄ 50'00	1°23'40
conjunction	2873 Feb 10 15:14	2° ♄ 17'37		max. Earth dist.	2881 Jun 13 01:45	22° ♄ 51'25	30.82860 AU
minimum elong	2873 May 24 18:18	4° ♄ 47'07	-1°-35'-19	retrograde	2881 Sep 27 07:45	25° ♄ 24'02	
max. Earth dist.	2873 May 24 18:18	4° ♄ 47'07	1°35'20	opposition	2881 Dec 15 09:10	23° ♄ 59'05	-1°-28'-21
retrograde	2873 May 25 13:49	4° ♄ 48'57	30.79281 AU	min. Earth dist.	2881 Dec 14 19:54	24° ♄ 00'01	28.83079 AU
opposition	2873 Sep 09 00:53	7° ♄ 21'47		direct	2882 Mar 03 00:45	22° ♄ 35'02	
min. Earth dist.	2873 Nov 27 13:52	5° ♄ 56'23	-1°-41'-25	conjunction	2882 Jun 15 00:30	25° ♄ 05'12	-1°-21'-36
direct	2873 Nov 26 19:46	5° ♄ 57'40	28.79557 AU	minimum elong	2882 Jun 15 00:30	25° ♄ 05'12	1°21'36
conjunction	2874 Feb 13 02:04	4° ♄ 32'32		max. Earth dist.	2882 Jun 15 14:02	25° ♄ 06'28	30.83171 AU
minimum elong	2874 May 27 08:02	7° ♄ 02'07	-1°-34'-21	retrograde	2882 Sep 29 20:58	27° ♄ 39'06	
max. Earth dist.	2874 May 27 08:03	7° ♄ 02'07	1°34'22	opposition	2882 Dec 17 20:18	26° ♄ 14'09	-1°-26'-5
retrograde	2874 May 28 04:25	7° ♄ 04'02	30.79657 AU	min. Earth dist.	2882 Dec 17 08:01	26° ♄ 15'02	28.83419 AU
min. Earth dist.	2874 Sep 11 13:54	9° ♄ 36'44		direct	2883 Mar 05 11:44	24° ♄ 50'02	
opposition	2874 Nov 29 07:29	8° ♄ 12'40	28.79990 AU	conjunction	2883 Jun 17 14:39	27° ♄ 20'15	-1°-19'-25
direct	2874 Nov 30 01:20	8° ♄ 11'24	-1°-40'-19	minimum elong	2883 Jun 17 14:39	27° ♄ 20'15	1°19'26
conjunction	2875 Feb 15 14:55	6° ♄ 47'34		max. Earth dist.	2883 Jun 18 04:44	27° ♄ 21'34	30.83546 AU
minimum elong	2875 May 29 21:46	9° ♄ 17'15	-1°-33'-14	retrograde	2883 Oct 02 09:56	29° ♄ 53'59	
max. Earth dist.	2875 May 29 21:46	9° ♄ 17'15	1°33'16	opposition	2883 Dec 20 07:17	28° ♄ 29'03	-1°-23'-42
	2875 May 30 16:46	9° ♄ 19'02	30.80161 AU	min. Earth dist.	2883 Dec 19 19:28	28° ♄ 29'54	28.83833 AU

direct	2884 Mar 07 01:44	27° Π 04'52		direct	2892 Mar 24 22:13	15° Θ 01'55	
conjunction	2884 Jun 19 04:37	29° Π 35'07	-1°-17'-7	conjunction	2892 Jul 07 22:08	17° Θ 32'40	0°-54'-51
minimum elong	2884 Jun 19 04:37	29° Π 35'07	1°17'08	minimum elong	2892 Jul 07 22:08	17° Θ 32'40	0°54'51
max. Earth dist.	2884 Jun 19 17:02	29° Π 36'17	30.84025 AU	max. Earth dist.	2892 Jul 08 04:55	17° Θ 33'18	30.90641 AU
	2884 Jun 30 07:40	0° Θ		retrograde	2892 Oct 22 01:06	20° Θ 05'09	
retrograde	2884 Oct 03 23:48	2° Θ 08'43		opposition	2893 Jan 08 08:48	18° Θ 40'51	0°-56'-56
opposition	2884 Dec 21 18:14	0° Θ 43'49	-1°-21'-10	min. Earth dist.	2893 Jan 08 03:40	18° Θ 41'13	28.91002 AU
min. Earth dist.	2884 Dec 21 06:32	0° Θ 44'38	28.84370 AU	direct	2893 Mar 27 12:16	17° Θ 16'24	
	2885 Jan 17 19:59	30° \mathbb{R} Π					
direct	2885 Mar 09 14:01	29° Π 19'34		conjunction	2893 Jul 10 12:17	19° Θ 47'12	0°-51'-39
	2885 Apr 28 02:17	0° Θ		minimum elong	2893 Jul 10 12:17	19° Θ 47'12	0°51'40
				max. Earth dist.	2893 Jul 10 16:49	19° Θ 47'37	30.91299 AU
conjunction	2885 Jun 21 18:47	1° Θ 49'52	-1°-14'-42	retrograde	2893 Oct 24 14:16	22° Θ 19'30	
minimum elong	2885 Jun 21 18:47	1° Θ 49'52	1°14'43	opposition	2894 Jan 10 19:20	20° Θ 55'14	0°-53'-28
max. Earth dist.	2885 Jun 22 07:32	1° Θ 51'03	30.84620 AU	min. Earth dist.	2894 Jan 10 14:45	20° Θ 55'33	28.91637 AU
retrograde	2885 Oct 06 10:56	4° Θ 23'18		direct	2894 Mar 30 00:44	19° Θ 30'42	
opposition	2885 Dec 24 05:08	2° Θ 58'27	-1°-18'-32				
min. Earth dist.	2885 Dec 23 18:31	2° Θ 59'12	28.85029 AU	conjunction	2894 Jul 13 02:29	22° Θ 01'32	0°-48'-23
direct	2886 Mar 12 01:59	1° Θ 34'10		minimum elong	2894 Jul 13 02:29	22° Θ 01'32	0°48'23
				max. Earth dist.	2894 Jul 13 07:01	22° Θ 01'58	30.91921 AU
conjunction	2886 Jun 24 08:48	4° Θ 04'31	-1°-12'-11	retrograde	2894 Oct 27 01:24	24° Θ 33'40	
minimum elong	2886 Jun 24 08:49	4° Θ 04'31	1°12'12	opposition	2895 Jan 13 05:56	23° Θ 09'26	0°-49'-57
max. Earth dist.	2886 Jun 24 20:26	4° Θ 05'36	30.85363 AU	min. Earth dist.	2895 Jan 13 02:46	23° Θ 09'39	28.92256 AU
retrograde	2886 Oct 09 00:32	6° Θ 37'49		direct	2895 Apr 01 13:07	21° Θ 44'51	
opposition	2886 Dec 26 15:59	5° Θ 13'02	-1°-15'-46				
min. Earth dist.	2886 Dec 26 04:59	5° Θ 13'49	28.85833 AU	conjunction	2895 Jul 15 16:21	24° Θ 15'42	0°-45'-3
direct	2887 Mar 14 13:46	3° Θ 48'44		minimum elong	2895 Jul 15 16:21	24° Θ 15'42	0°45'04
				max. Earth dist.	2895 Jul 15 19:22	24° Θ 15'59	30.92566 AU
conjunction	2887 Jun 26 22:45	6° Θ 19'09	-1°-9'-32	retrograde	2895 Oct 29 14:51	26° Θ 47'38	
minimum elong	2887 Jun 26 22:45	6° Θ 19'09	1°09'34	opposition	2896 Jan 15 16:20	25° Θ 23'26	0°-46'-21
max. Earth dist.	2887 Jun 27 10:10	6° Θ 20'13	30.86225 AU	min. Earth dist.	2896 Jan 15 13:04	25° Θ 23'40	28.92920 AU
retrograde	2887 Oct 11 12:17	8° Θ 52'20		direct	2896 Apr 03 01:41	23° Θ 58'47	
opposition	2887 Dec 29 02:57	7° Θ 27'38	-1°-12'-53				
min. Earth dist.	2887 Dec 28 17:32	7° Θ 28'18	28.86743 AU	conjunction	2896 Jul 17 06:23	26° Θ 29'41	0°-41'-39
direct	2888 Mar 15 23:50	6° Θ 03'20		minimum elong	2896 Jul 17 06:23	26° Θ 29'41	0°41'39
				max. Earth dist.	2896 Jul 17 09:05	26° Θ 29'56	30.93259 AU
conjunction	2888 Jun 28 12:59	8° Θ 33'48	-1°-6'-48	retrograde	2896 Oct 31 01:49	29° Θ 01'26	
minimum elong	2888 Jun 28 12:59	8° Θ 33'48	1°06'49	opposition	2897 Jan 17 02:43	27° Θ 37'17	0°-42'-41
max. Earth dist.	2888 Jun 28 23:44	8° Θ 34'49	30.87184 AU	min. Earth dist.	2897 Jan 17 01:05	27° Θ 37'24	28.93661 AU
retrograde	2888 Oct 13 00:21	11° Θ 06'52		direct	2897 Apr 05 12:16	26° Θ 12'35	
opposition	2888 Dec 30 13:35	9° Θ 42'17	-1°-9'-54				
min. Earth dist.	2888 Dec 30 03:59	9° Θ 42'57	28.87708 AU	conjunction	2897 Jul 19 20:18	28° Θ 43'30	0°-38'-12
direct	2889 Mar 18 12:07	8° Θ 17'57		minimum elong	2897 Jul 19 20:19	28° Θ 43'30	0°38'13
				max. Earth dist.	2897 Jul 19 22:17	28° Θ 43'41	30.94063 AU
conjunction	2889 Jul 01 03:14	10° Θ 48'31	-1°-3'-57			0° \mathbb{Q}	
minimum elong	2889 Jul 01 03:14	10° Θ 48'31	1°03'58	retrograde	2897 Nov 02 12:51	1° \mathbb{Q} 15'04	
max. Earth dist.	2889 Jul 01 12:30	10° Θ 49'23	30.88149 AU		2898 Jan 14 05:38	30° \mathbb{R} Θ	
retrograde	2889 Oct 15 11:56	13° Θ 21'28		opposition	2898 Jan 19 13:02	29° Θ 50'59	0°-38'-57
opposition	2890 Jan 02 00:30	11° Θ 56'58	-1°-6'-48	min. Earth dist.	2898 Jan 19 10:55	29° Θ 51'08	28.94520 AU
min. Earth dist.	2890 Jan 01 16:40	11° Θ 57'31	28.88662 AU	direct	2898 Apr 08 00:51	28° Θ 26'14	
direct	2890 Mar 20 22:38	10° Θ 32'38			2898 Jun 26 03:33	0° \mathbb{Q}	
conjunction	2890 Jul 03 17:30	13° Θ 03'17	-1°-1'00	conjunction	2898 Jul 22 09:57	0° \mathbb{Q} 57'11	0°-34'-41
minimum elong	2890 Jul 03 17:30	13° Θ 03'17	1°01'01	minimum elong	2898 Jul 22 09:57	0° \mathbb{Q} 57'11	0°34'42
max. Earth dist.	2890 Jul 04 02:30	13° Θ 04'07	30.89073 AU	max. Earth dist.	2898 Jul 22 10:58	0° \mathbb{Q} 57'17	30.94988 AU
retrograde	2890 Oct 18 00:06	15° Θ 36'05		retrograde	2898 Nov 04 23:20	3° \mathbb{Q} 28'37	
opposition	2891 Jan 04 11:18	14° Θ 11'40	-1°-3'-36	opposition	2899 Jan 21 23:28	2° \mathbb{Q} 04'36	0°-35'-10
min. Earth dist.	2891 Jan 04 03:47	14° Θ 12'12	28.89534 AU	min. Earth dist.	2899 Jan 21 22:37	2° \mathbb{Q} 04'39	28.95524 AU
direct	2891 Mar 23 11:23	12° Θ 47'19		direct	2899 Apr 10 10:45	0° \mathbb{Q} 39'50	
conjunction	2891 Jul 06 07:44	15° Θ 18'01	0°-57'-58	conjunction	2899 Jul 24 23:46	3° \mathbb{Q} 10'50	0°-31'-7
minimum elong	2891 Jul 06 07:44	15° Θ 18'01	0°58'00	minimum elong	2899 Jul 24 23:47	3° \mathbb{Q} 10'50	0°31'09
max. Earth dist.	2891 Jul 06 14:35	15° Θ 18'39	30.89903 AU	max. Earth dist.	2899 Jul 25 00:53	3° \mathbb{Q} 10'56	30.96068 AU
retrograde	2891 Oct 20 12:52	17° Θ 50'40		retrograde	2899 Nov 07 10:32	5° \mathbb{Q} 42'06	
opposition	2892 Jan 06 22:04	16° Θ 26'19	-1°00'-18	opposition	2900 Jan 24 09:38	4° \mathbb{Q} 18'11	0°-31'-20
min. Earth dist.	2892 Jan 06 15:58	16° Θ 26'45	28.90321 AU	min. Earth dist.	2900 Jan 24 08:46	4° \mathbb{Q} 18'14	28.96657 AU

direct	2900 Apr 12 22:13	2°♏53'24		conjunction	2907 Aug 13 13:19	20°♏58'50	0°-1'-28
				minimum elong	2907 Aug 13 13:19	20°♏58'50	0°01'30
conjunction	2900 Jul 27 13:31	5°♏24'28	0°-27'-30	behind sun begin	2907 Aug 13 06:43	20°♏58'15	
minimum elong	2900 Jul 27 13:31	5°♏24'28	0°27'31	behind sun end	2907 Aug 13 19:55	20°♏59'25	
max. Earth dist.	2900 Jul 27 12:59	5°♏24'25	30.97261 AU	max. Earth dist.	2907 Aug 13 05:52	20°♏58'10	31.04796 AU
retrograde	2900 Nov 09 22:05	7°♏55'36		retrograde	2907 Nov 26 06:34	23°♏28'44	
opposition	2901 Jan 26 19:57	6°♏31'47	0°-27'-27	asc. node	2908 Jan 01 09:27	23°♏07'26	
min. Earth dist.	2901 Jan 26 20:08	6°♏31'46	28.97893 AU	opposition	2908 Feb 11 19:42	22°♏05'22	0°00'27
direct	2901 Apr 15 08:32	5°♏07'01		min. Earth dist.	2908 Feb 12 02:31	22°♏04'53	29.05241 AU
				direct	2908 Apr 30 22:19	20°♏40'22	
conjunction	2901 Jul 30 03:23	7°♏38'09	0°-23'-51				
minimum elong	2901 Jul 30 03:23	7°♏38'09	0°23'53	conjunction	2908 Aug 15 02:47	23°♏11'36	0°02'23
max. Earth dist.	2901 Jul 30 03:07	7°♏38'07	30.98515 AU	minimum elong	2908 Aug 15 02:46	23°♏11'36	0°02'24
retrograde	2901 Nov 12 09:07	10°♏09'08		behind sun begin	2908 Aug 14 20:11	23°♏11'01	
opposition	2902 Jan 29 06:12	8°♏45'25	0°-23'-31	behind sun end	2908 Aug 15 09:21	23°♏12'11	
min. Earth dist.	2902 Jan 29 07:17	8°♏45'21	28.99144 AU	max. Earth dist.	2908 Aug 14 19:06	23°♏10'55	31.05687 AU
direct	2902 Apr 17 21:46	7°♏20'40		retrograde	2908 Nov 27 16:43	25°♏41'18	
				opposition	2909 Feb 13 05:46	24°♏17'58	0°04'28
conjunction	2902 Aug 01 17:05	9°♏51'51	0°-20'-10	min. Earth dist.	2909 Feb 13 12:41	24°♏17'29	29.06144 AU
minimum elong	2902 Aug 01 17:05	9°♏51'51	0°20'10	direct	2909 May 03 10:22	22°♏52'56	
max. Earth dist.	2902 Aug 01 14:40	9°♏51'38	30.99762 AU				
retrograde	2902 Nov 14 21:56	12°♏22'42		conjunction	2909 Aug 17 15:52	25°♏24'09	0°06'08
opposition	2903 Jan 31 16:31	10°♏59'05	0°-19'-34	minimum elong	2909 Aug 17 15:52	25°♏24'09	0°06'07
min. Earth dist.	2903 Jan 31 18:05	10°♏58'58	29.00371 AU	behind sun begin	2909 Aug 17 09:37	25°♏23'35	
direct	2903 Apr 20 09:26	9°♏34'18		behind sun end	2909 Aug 17 22:07	25°♏24'42	
				max. Earth dist.	2909 Aug 17 06:43	25°♏23'19	31.06620 AU
conjunction	2903 Aug 04 06:53	12°♏05'33	0°-16'-28	retrograde	2909 Nov 30 02:52	27°♏53'41	
minimum elong	2903 Aug 04 06:53	12°♏05'33	0°16'29	opposition	2910 Feb 15 15:52	26°♏30'23	0°08'28
max. Earth dist.	2903 Aug 04 04:20	12°♏05'19	31.00942 AU	min. Earth dist.	2910 Feb 15 23:33	26°♏29'51	29.07133 AU
retrograde	2903 Nov 17 09:05	14°♏36'14		direct	2910 May 05 20:53	25°♏05'18	
opposition	2904 Feb 03 02:55	13°♏12'41	0°-15'-35				
min. Earth dist.	2904 Feb 03 06:11	13°♏12'27	29.01500 AU	conjunction	2910 Aug 20 05:04	27°♏36'32	0°09'51
direct	2904 Apr 21 21:46	11°♏47'54		minimum elong	2910 Aug 20 05:04	27°♏36'31	0°09'52
				behind sun begin	2910 Aug 19 23:44	27°♏36'03	
conjunction	2904 Aug 05 20:39	14°♏19'09	0°-12'-44	behind sun end	2910 Aug 20 10:23	27°♏37'00	
minimum elong	2904 Aug 05 20:39	14°♏19'09	0°12'44	max. Earth dist.	2910 Aug 19 20:29	27°♏35'45	31.07659 AU
behind sun begin	2904 Aug 05 16:38	14°♏18'47			2910 Nov 14 00:13	0°♐	
behind sun end	2904 Aug 06 00:40	14°♏19'30		retrograde	2910 Dec 02 12:28	0°♐05'53	
max. Earth dist.	2904 Aug 05 16:04	14°♏18'44	31.02027 AU		2910 Dec 21 06:23	30°♐♏	
	2904 Aug 24 10:04	15°♏		opposition	2911 Feb 18 01:56	28°♏42'40	0°12'27
retrograde	2904 Nov 18 22:30	16°♏49'38		min. Earth dist.	2911 Feb 18 10:08	28°♏42'05	29.08231 AU
opposition	2905 Feb 04 13:04	15°♏26'09	0°-11'-35	direct	2911 May 08 09:15	27°♏17'34	
min. Earth dist.	2905 Feb 04 16:31	15°♏25'55	29.02531 AU				
	2905 Feb 20 05:50	15°♐♏		conjunction	2911 Aug 22 17:59	29°♏48'48	0°13'34
direct	2905 Apr 24 11:12	14°♏01'19		minimum elong	2911 Aug 22 17:59	29°♏48'48	0°13'33
	2905 Jun 24 18:06	15°♏		behind sun begin	2911 Aug 22 14:29	29°♏48'30	
				behind sun end	2911 Aug 22 21:29	29°♏49'07	
conjunction	2905 Aug 08 10:26	16°♏32'36	0°-8'-59	max. Earth dist.	2911 Aug 22 07:45	29°♏47'52	31.08826 AU
minimum elong	2905 Aug 08 10:26	16°♏32'36	0°09'01		2911 Aug 27 18:54	0°♐	
behind sun begin	2905 Aug 08 04:50	16°♏32'06		retrograde	2911 Dec 05 00:24	2°♐18'02	
behind sun end	2905 Aug 08 16:02	16°♏33'05		opposition	2912 Feb 20 11:59	0°♐54'53	0°16'25
max. Earth dist.	2905 Aug 08 05:15	16°♏32'08	31.03005 AU	min. Earth dist.	2912 Feb 20 20:07	0°♐54'18	29.09463 AU
retrograde	2905 Nov 21 08:58	19°♏02'54			2912 Mar 26 20:02	30°♐♏	
opposition	2906 Feb 06 23:28	17°♏39'27	0°-7'-34	direct	2912 May 09 20:11	29°♏29'48	
min. Earth dist.	2906 Feb 07 04:50	17°♏39'04	29.03473 AU		2912 Jun 22 06:25	0°♐	
direct	2906 Apr 26 22:56	16°♏14'35					
				conjunction	2912 Aug 24 07:08	2°♐01'05	0°17'16
conjunction	2906 Aug 10 23:51	18°♏45'50	0°-5'-15	minimum elong	2912 Aug 24 07:08	2°♐01'04	0°17'16
minimum elong	2906 Aug 10 23:51	18°♏45'50	0°05'16	max. Earth dist.	2912 Aug 23 21:20	2°♐00'11	31.10107 AU
behind sun begin	2906 Aug 10 17:29	18°♏45'16		retrograde	2912 Dec 06 10:50	4°♐30'10	
behind sun end	2906 Aug 11 06:14	18°♏46'24		opposition	2913 Feb 21 22:05	3°♐07'08	0°20'22
max. Earth dist.	2906 Aug 10 17:36	18°♏45'17	31.03923 AU	min. Earth dist.	2913 Feb 22 07:30	3°♐06'28	29.10787 AU
retrograde	2906 Nov 23 20:09	21°♏15'56		direct	2913 May 12 08:00	1°♐42'05	
opposition	2907 Feb 09 09:36	19°♏52'32	0°-3'-33				
min. Earth dist.	2907 Feb 09 14:49	19°♏52'10	29.04361 AU	conjunction	2913 Aug 26 20:03	4°♐13'25	0°20'56
direct	2907 Apr 29 11:57	18°♏27'36		minimum elong	2913 Aug 26 20:03	4°♐13'25	0°20'56
				max. Earth dist.	2913 Aug 26 08:48	4°♐12'23	31.11473 AU

retrograde	2913 Dec 09 00:02	6° 11 42'24		direct	2922 Jun 01 17:33	21° 11 31'54	
opposition	2914 Feb 24 08:09	5° 11 19'28	0°24'17				
min. Earth dist.	2914 Feb 24 17:20	5° 11 18'49	29.12168 AU	conjunction	2922 Sep 16 13:42	24° 11 03'09	0°51'54
direct	2914 May 14 20:58	3° 11 54'28		minimum elong	2922 Sep 16 13:42	24° 11 03'09	0°51'55
				max. Earth dist.	2922 Sep 15 19:33	24° 11 01'29	31.20615 AU
conjunction	2914 Aug 29 08:55	6° 11 25'50	0°24'35	retrograde	2922 Dec 28 20:49	26° 11 30'52	
minimum elong	2914 Aug 29 08:55	6° 11 25'50	0°24'35	opposition	2923 Mar 16 03:57	25° 11 08'23	0°57'06
max. Earth dist.	2914 Aug 28 21:32	6° 11 24'48	31.12841 AU	min. Earth dist.	2923 Mar 16 19:21	25° 11 07'18	29.21086 AU
retrograde	2914 Dec 11 10:32	8° 11 54'43		direct	2923 Jun 04 06:48	23° 11 43'15	
opposition	2915 Feb 26 18:25	7° 11 31'54	0°28'09	max. Earth dist.	2923 Sep 18 07:58	26° 11 12'50	31.21496 AU
min. Earth dist.	2915 Feb 27 05:25	7° 11 31'07	29.13524 AU				
direct	2915 May 17 08:26	6° 11 06'56		conjunction	2923 Sep 19 01:51	26° 11 14'29	0°55'01
				minimum elong	2923 Sep 19 01:51	26° 11 14'29	0°55'00
conjunction	2915 Aug 31 21:53	8° 11 38'21	0°28'11	retrograde	2923 Dec 31 06:23	28° 11 42'04	
minimum elong	2915 Aug 31 21:53	8° 11 38'21	0°28'11	opposition	2924 Mar 17 14:08	27° 11 19'37	1°00'23
max. Earth dist.	2915 Aug 31 09:23	8° 11 37'12	31.14160 AU	min. Earth dist.	2924 Mar 18 06:49	27° 11 18'27	29.22026 AU
retrograde	2915 Dec 13 21:59	11° 11 07'06		direct	2924 Jun 05 18:13	25° 11 54'29	
opposition	2916 Feb 29 04:27	9° 11 44'23	0°31'59				
min. Earth dist.	2916 Feb 29 15:24	9° 11 43'37	29.14790 AU	conjunction	2924 Sep 20 13:52	28° 11 25'42	0°58'03
direct	2916 May 18 21:10	8° 11 19'26		minimum elong	2924 Sep 20 13:52	28° 11 25'42	0°58'03
				max. Earth dist.	2924 Sep 19 19:34	28° 11 24'00	31.22489 AU
conjunction	2916 Sep 02 10:51	10° 11 50'53	0°31'45		2924 Nov 05 09:53	0° 11	
minimum elong	2916 Sep 02 10:51	10° 11 50'53	0°31'45	retrograde	2925 Jan 01 17:34	0° 11 53'09	
max. Earth dist.	2916 Sep 01 21:04	10° 11 49'37	31.15359 AU		2925 Mar 02 03:13	30° 11	
retrograde	2916 Dec 15 09:05	13° 11 19'30		opposition	2925 Mar 20 00:19	29° 11 30'46	1°03'34
opposition	2917 Mar 02 14:48	11° 11 56'51	0°35'46	min. Earth dist.	2925 Mar 20 16:18	29° 11 29'39	29.23057 AU
min. Earth dist.	2917 Mar 03 03:22	11° 11 55'59	29.15938 AU	direct	2925 Jun 08 07:12	28° 11 05'40	
direct	2917 May 21 07:44	10° 11 31'55			2925 Sep 06 07:34	0° 11	
				max. Earth dist.	2925 Sep 22 06:54	0° 11 35'08	31.23550 AU
conjunction	2917 Sep 04 23:38	13° 11 03'22	0°35'16				
minimum elong	2917 Sep 04 23:38	13° 11 03'22	0°35'15	conjunction	2925 Sep 23 01:40	0° 11 36'52	1°01'00
max. Earth dist.	2917 Sep 04 09:27	13° 11 02'03	31.16438 AU	minimum elong	2925 Sep 23 01:40	0° 11 36'52	1°00'59
retrograde	2917 Dec 17 18:56	15° 11 31'50		retrograde	2926 Jan 04 04:37	3° 11 04'15	
opposition	2918 Mar 05 01:03	14° 11 09'15	0°39'30	opposition	2926 Mar 22 10:39	1° 11 41'56	1°06'40
min. Earth dist.	2918 Mar 05 13:57	14° 11 08'21	29.16948 AU	min. Earth dist.	2926 Mar 23 03:38	1° 11 40'45	29.24154 AU
direct	2918 May 23 19:55	12° 11 44'19		direct	2926 Jun 10 18:12	0° 11 16'52	
conjunction	2918 Sep 07 12:17	15° 11 15'44	0°38'43	conjunction	2926 Sep 25 13:34	2° 11 48'04	1°03'51
minimum elong	2918 Sep 07 12:17	15° 11 15'44	0°38'44	minimum elong	2926 Sep 25 13:34	2° 11 48'04	1°03'52
max. Earth dist.	2918 Sep 06 20:20	15° 11 14'15	31.17389 AU	max. Earth dist.	2926 Sep 24 18:58	2° 11 46'21	31.24652 AU
retrograde	2918 Dec 20 04:29	17° 11 44'04		retrograde	2927 Jan 06 14:11	5° 11 15'22	
opposition	2919 Mar 07 11:12	16° 11 21'31	0°43'10	opposition	2927 Mar 24 20:50	3° 11 53'08	1°09'40
min. Earth dist.	2919 Mar 08 01:07	16° 11 20'32	29.17860 AU	min. Earth dist.	2927 Mar 25 13:56	3° 11 51'56	29.25240 AU
direct	2919 May 26 06:37	14° 11 56'32		direct	2927 Jun 13 06:38	2° 11 28'07	
max. Earth dist.	2919 Sep 09 09:16	17° 11 26'29	31.18248 AU	max. Earth dist.	2927 Sep 27 05:22	4° 11 57'28	31.25707 AU
conjunction	2919 Sep 10 00:57	17° 11 27'55	0°42'07	conjunction	2927 Sep 28 01:23	4° 11 59'19	1°06'37
minimum elong	2919 Sep 10 00:57	17° 11 27'55	0°42'07	minimum elong	2927 Sep 28 01:23	4° 11 59'19	1°06'37
retrograde	2919 Dec 22 13:00	19° 11 56'05		retrograde	2928 Jan 09 00:15	7° 11 26'32	
opposition	2920 Mar 08 21:28	18° 11 33'34	0°46'45	opposition	2928 Mar 26 07:14	6° 11 04'22	1°12'34
min. Earth dist.	2920 Mar 09 12:16	18° 11 32'32	29.18673 AU	min. Earth dist.	2928 Mar 27 01:02	6° 11 03'08	29.26266 AU
direct	2920 May 27 18:42	17° 11 08'33		direct	2928 Jun 14 16:58	4° 11 39'23	
conjunction	2920 Sep 11 13:21	19° 11 39'54	0°45'27	conjunction	2928 Sep 29 13:16	7° 11 10'35	1°09'17
minimum elong	2920 Sep 11 13:21	19° 11 39'54	0°45'28	minimum elong	2928 Sep 29 13:16	7° 11 10'35	1°09'17
max. Earth dist.	2920 Sep 10 19:51	19° 11 38'17	31.19035 AU	max. Earth dist.	2928 Sep 28 17:44	7° 11 08'47	31.26668 AU
retrograde	2920 Dec 24 00:06	22° 11 07'55		retrograde	2929 Jan 10 08:46	9° 11 37'44	
opposition	2921 Mar 11 07:32	20° 11 45'24	0°50'17	opposition	2929 Mar 28 17:44	8° 11 15'38	1°15'22
min. Earth dist.	2921 Mar 11 22:24	20° 11 44'22	29.19453 AU	min. Earth dist.	2929 Mar 29 12:24	8° 11 14'20	29.27163 AU
direct	2921 May 30 05:14	19° 11 20'20		direct	2929 Jun 17 04:35	6° 11 50'41	
max. Earth dist.	2921 Sep 13 08:46	21° 11 50'05	31.19803 AU	max. Earth dist.	2929 Oct 01 03:40	9° 11 19'53	31.27501 AU
conjunction	2921 Sep 14 01:45	21° 11 51'39	0°48'43	conjunction	2929 Oct 02 00:56	9° 11 21'51	1°11'50
minimum elong	2921 Sep 14 01:45	21° 11 51'39	0°48'43	minimum elong	2929 Oct 02 00:56	9° 11 21'51	1°11'50
retrograde	2921 Dec 26 09:07	24° 11 19'30		retrograde	2930 Jan 12 19:56	11° 11 48'55	
opposition	2922 Mar 13 17:50	22° 11 57'00	0°53'44	opposition	2930 Mar 31 04:12	10° 11 26'51	1°18'02
min. Earth dist.	2922 Mar 14 09:52	22° 11 55'53	29.20237 AU	min. Earth dist.	2930 Mar 31 22:46	10° 11 25'34	29.27941 AU

direct	2930 Jun 19 14:45	9° 2 01'55		conjunction	2938 Oct 22 04:52	28° 2 58'21	1°29'49
				minimum elong	2938 Oct 22 04:51	28° 2 58'21	1°29'49
conjunction	2930 Oct 04 12:34	11° 2 33'04	1°14'18		2938 Nov 19 15:43	0° 0	
minimum elong	2930 Oct 04 12:34	11° 2 33'04	1°14'18	retrograde	2939 Feb 01 12:45	1° 0 24'48	
max. Earth dist.	2930 Oct 03 15:43	11° 2 31'08	31.28199 AU	opposition	2939 Apr 20 03:08	0° 0 02'55	1°36'40
retrograde	2931 Jan 15 04:44	14° 2 00'03		min. Earth dist.	2939 Apr 20 22:58	0° 0 01'33	29.32879 AU
opposition	2931 Apr 02 14:47	12° 2 38'01	1°20'36		2939 Apr 21 21:28	30° 0 0	
min. Earth dist.	2931 Apr 03 10:45	12° 2 36'38	29.28572 AU	direct	2939 Jul 10 00:55	28° 2 38'04	
direct	2931 Jun 22 02:48	11° 2 13'05			2939 Sep 22 14:11	0° 0	
max. Earth dist.	2931 Oct 06 01:48	13° 2 42'07	31.28771 AU				
				conjunction	2939 Oct 24 15:40	1° 0 08'51	1°31'12
conjunction	2931 Oct 07 00:04	13° 2 44'11	1°16'39	minimum elong	2939 Oct 24 15:40	1° 0 08'51	1°31'11
minimum elong	2931 Oct 07 00:04	13° 2 44'11	1°16'38	max. Earth dist.	2939 Oct 23 18:07	1° 0 06'51	31.33132 AU
retrograde	2932 Jan 17 16:05	16° 2 11'04		retrograde	2940 Feb 03 20:54	3° 0 35'17	
opposition	2932 Apr 04 01:07	14° 2 49'03	1°23'03	opposition	2940 Apr 21 13:56	2° 0 13'27	1°38'05
min. Earth dist.	2932 Apr 04 20:39	14° 2 47'42	29.29088 AU	min. Earth dist.	2940 Apr 22 10:50	2° 0 12'01	29.33571 AU
direct	2932 Jun 23 15:35	13° 2 24'06		direct	2940 Jul 11 12:12	0° 0 48'40	
				max. Earth dist.	2940 Oct 25 03:53	3° 0 17'19	31.33795 AU
conjunction	2932 Oct 08 11:34	15° 2 55'10	1°18'53				
minimum elong	2932 Oct 08 11:34	15° 2 55'10	1°18'53	conjunction	2940 Oct 26 02:17	3° 0 19'24	1°32'27
max. Earth dist.	2932 Oct 07 13:27	15° 2 53'07	31.29231 AU	minimum elong	2940 Oct 26 02:17	3° 0 19'24	1°32'27
retrograde	2933 Jan 19 01:35	18° 2 21'59		retrograde	2941 Feb 05 07:56	5° 0 45'50	
opposition	2933 Apr 06 11:44	16° 2 59'57	1°25'23	opposition	2941 Apr 24 00:48	4° 0 24'01	1°39'21
min. Earth dist.	2933 Apr 07 08:40	16° 2 58'30	29.29521 AU	min. Earth dist.	2941 Apr 24 20:53	4° 0 22'39	29.34188 AU
direct	2933 Jun 26 02:52	15° 2 34'59		direct	2941 Jul 13 23:36	2° 0 59'17	
conjunction	2933 Oct 10 22:38	18° 2 05'59	1°21'00	conjunction	2941 Oct 28 12:51	5° 0 29'59	1°33'34
minimum elong	2933 Oct 10 22:37	18° 2 05'59	1°21'00	minimum elong	2941 Oct 28 12:51	5° 0 29'59	1°33'34
max. Earth dist.	2933 Oct 10 00:15	18° 2 03'55	31.29643 AU	max. Earth dist.	2941 Oct 27 14:46	5° 0 27'56	31.34347 AU
retrograde	2934 Jan 21 12:11	20° 2 32'42		retrograde	2942 Feb 07 17:43	7° 0 56'24	
opposition	2934 Apr 08 22:12	19° 2 10'40	1°27'35	opposition	2942 Apr 26 11:52	6° 0 34'37	1°40'28
min. Earth dist.	2934 Apr 09 18:21	19° 2 09'17	29.29920 AU	min. Earth dist.	2942 Apr 27 09:11	6° 0 33'09	29.34689 AU
direct	2934 Jun 28 16:23	17° 2 45'41		direct	2942 Jul 16 09:52	5° 0 09'54	
max. Earth dist.	2934 Oct 12 10:59	20° 2 14'32	31.30040 AU				
				conjunction	2942 Oct 30 23:27	7° 0 40'33	1°34'33
conjunction	2934 Oct 13 09:41	20° 2 16'38	1°23'01	minimum elong	2942 Oct 30 23:27	7° 0 40'33	1°34'33
minimum elong	2934 Oct 13 09:41	20° 2 16'38	1°23'01	max. Earth dist.	2942 Oct 30 01:09	7° 0 38'28	31.34783 AU
retrograde	2935 Jan 23 23:12	22° 2 43'16		retrograde	2943 Feb 10 04:31	10° 0 06'56	
opposition	2935 Apr 11 08:39	21° 2 21'14	1°29'40	opposition	2943 Apr 28 22:42	8° 0 45'09	1°41'27
min. Earth dist.	2935 Apr 12 05:32	21° 2 19'47	29.30354 AU	min. Earth dist.	2943 Apr 29 19:21	8° 0 43'44	29.35048 AU
direct	2935 Jul 01 04:08	19° 2 56'14		direct	2943 Jul 18 23:32	7° 0 20'27	
				max. Earth dist.	2943 Nov 01 11:08	9° 0 48'55	31.35068 AU
conjunction	2935 Oct 15 20:41	22° 2 27'08	1°24'54				
minimum elong	2935 Oct 15 20:41	22° 2 27'08	1°24'53	conjunction	2943 Nov 02 10:02	9° 0 51'03	1°35'24
max. Earth dist.	2935 Oct 14 22:38	22° 2 25'05	31.30503 AU	minimum elong	2943 Nov 02 10:02	9° 0 51'03	1°35'24
retrograde	2936 Jan 26 08:01	24° 2 53'41		retrograde	2944 Feb 12 15:57	12° 0 17'24	
opposition	2936 Apr 12 19:13	23° 2 31'40	1°31'37	opposition	2944 Apr 30 09:49	10° 0 55'36	1°42'18
min. Earth dist.	2936 Apr 13 15:37	23° 2 30'15	29.30852 AU	min. Earth dist.	2944 May 01 07:14	10° 0 54'08	29.35277 AU
direct	2936 Jul 02 17:15	22° 2 06'41		direct	2944 Jul 20 11:22	9° 0 30'55	
max. Earth dist.	2936 Oct 16 08:40	24° 2 35'25	31.31049 AU				
				conjunction	2944 Nov 03 20:27	12° 0 01'26	1°36'08
conjunction	2936 Oct 17 07:27	24° 2 37'32	1°26'40	minimum elong	2944 Nov 03 20:27	12° 0 01'26	1°36'08
minimum elong	2936 Oct 17 07:26	24° 2 37'32	1°26'40	max. Earth dist.	2944 Nov 02 22:10	11° 0 59'22	31.35233 AU
retrograde	2937 Jan 27 17:35	27° 2 04'02		retrograde	2945 Feb 14 00:50	14° 0 27'45	
opposition	2937 Apr 15 05:50	25° 2 42'03	1°33'26	opposition	2945 May 02 20:57	13° 0 05'56	1°42'59
min. Earth dist.	2937 Apr 16 02:05	25° 2 40'39	29.31461 AU	min. Earth dist.	2945 May 03 18:07	13° 0 04'29	29.35377 AU
direct	2937 Jul 05 03:39	24° 2 17'06		direct	2945 Jul 23 00:53	11° 0 41'15	
				max. Earth dist.	2945 Nov 05 07:33	14° 0 09'32	31.35294 AU
conjunction	2937 Oct 19 18:18	26° 2 47'56	1°28'18				
minimum elong	2937 Oct 19 18:18	26° 2 47'56	1°28'18	conjunction	2945 Nov 06 06:41	14° 0 11'41	1°36'42
max. Earth dist.	2937 Oct 18 20:49	26° 2 45'56	31.31703 AU	minimum elong	2945 Nov 06 06:41	14° 0 11'41	1°36'43
retrograde	2938 Jan 30 01:42	29° 2 14'23			2945 Nov 28 06:04	15° 0	
opposition	2938 Apr 17 16:31	27° 2 52'27	1°35'07	retrograde	2946 Feb 16 10:59	16° 0 37'58	
min. Earth dist.	2938 Apr 18 13:01	27° 2 51'02	29.32149 AU	opposition	2946 May 05 07:58	15° 0 16'07	1°43'33
direct	2938 Jul 07 15:01	26° 2 27'33		min. Earth dist.	2946 May 06 05:03	15° 0 14'40	29.35418 AU
max. Earth dist.	2938 Oct 21 06:25	28° 2 56'16	31.32420 AU		2946 May 15 05:14	15° 0 0	
				direct	2946 Jul 25 11:55	13° 0 51'25	

	2946 Oct 01 00:12	15° ℓ		direct	2954 Aug 12 07:07	1° ♂ 12'44	
conjunction	2946 Nov 08 16:52	16° ℓ 21'46	1°37'09	conjunction	2954 Nov 25 23:39	3° ♂ 42'46	1°35'43
minimum elong	2946 Nov 08 16:52	16° ℓ 21'46	1°37'10	minimum elong	2954 Nov 25 23:39	3° ♂ 42'46	1°35'44
max. Earth dist.	2946 Nov 07 19:05	16° ℓ 19'44	31.35312 AU	max. Earth dist.	2954 Nov 25 03:52	3° ♂ 40'55	31.36573 AU
retrograde	2947 Feb 18 19:05	18° ℓ 48'01		retrograde	2955 Mar 08 06:44	6° ♂ 09'23	
opposition	2947 May 07 19:08	17° ℓ 26'08	1°43'57	opposition	2955 May 25 14:17	4° ♂ 47'37	1°41'50
min. Earth dist.	2947 May 08 16:25	17° ℓ 24'41	29.35425 AU	min. Earth dist.	2955 May 26 08:32	4° ♂ 46'23	29.36638 AU
direct	2947 Jul 28 00:29	16° ℓ 01'26		direct	2955 Aug 14 18:28	3° ♂ 23'22	
max. Earth dist.	2947 Nov 10 04:23	18° ℓ 29'37	31.35335 AU				
conjunction	2947 Nov 11 02:49	18° ℓ 31'42	1°37'28	conjunction	2955 Nov 28 09:32	5° ♂ 53'22	1°34'55
minimum elong	2947 Nov 11 02:49	18° ℓ 31'42	1°37'27	minimum elong	2955 Nov 28 09:32	5° ♂ 53'22	1°34'55
retrograde	2948 Feb 21 05:38	20° ℓ 57'57		max. Earth dist.	2955 Nov 27 14:59	5° ♂ 51'38	31.36449 AU
opposition	2948 May 09 06:11	19° ℓ 36'03	1°44'12	retrograde	2956 Mar 09 15:49	8° ♂ 20'01	
min. Earth dist.	2948 May 10 02:17	19° ℓ 34'41	29.35480 AU	opposition	2956 May 27 02:07	6° ♂ 58'15	1°40'54
direct	2948 Jul 29 11:11	18° ℓ 11'21		min. Earth dist.	2956 May 27 20:42	6° ♂ 56'59	29.36427 AU
				direct	2956 Aug 16 07:47	5° ♂ 34'02	
conjunction	2948 Nov 12 12:51	20° ℓ 41'34	1°37'38	conjunction	2956 Nov 29 19:14	8° ♂ 03'57	1°33'59
minimum elong	2948 Nov 12 12:51	20° ℓ 41'34	1°37'38	minimum elong	2956 Nov 29 19:14	8° ♂ 03'57	1°33'59
max. Earth dist.	2948 Nov 11 15:49	20° ℓ 39'36	31.35421 AU	max. Earth dist.	2956 Nov 28 23:52	8° ♂ 02'08	31.36172 AU
retrograde	2949 Feb 22 13:43	23° ℓ 07'50		retrograde	2957 Mar 12 02:58	10° ♂ 30'39	
opposition	2949 May 11 17:32	21° ℓ 45'56	1°44'19	opposition	2957 May 29 13:55	9° ♂ 08'50	1°39'50
min. Earth dist.	2949 May 12 14:01	21° ℓ 44'32	29.35613 AU	min. Earth dist.	2957 May 30 07:27	9° ♂ 07'39	29.36075 AU
direct	2949 Jul 31 22:14	20° ℓ 21'17		direct	2957 Aug 18 19:13	7° ♂ 44'37	
				max. Earth dist.	2957 Dec 01 10:36	10° ♂ 12'44	31.35748 AU
conjunction	2949 Nov 14 22:34	22° ℓ 51'26	1°37'40				
minimum elong	2949 Nov 14 22:34	22° ℓ 51'26	1°37'40	conjunction	2957 Dec 02 04:53	10° ♂ 14'27	1°32'55
max. Earth dist.	2949 Nov 14 01:26	22° ℓ 49'28	31.35610 AU	minimum elong	2957 Dec 02 04:53	10° ♂ 14'27	1°32'55
retrograde	2950 Feb 25 00:27	25° ℓ 17'44		retrograde	2958 Mar 14 10:37	12° ♂ 41'12	
opposition	2950 May 14 04:43	23° ℓ 55'51	1°44'17	opposition	2958 Jun 01 01:50	11° ♂ 19'20	1°38'38
min. Earth dist.	2950 May 14 23:42	23° ℓ 54'34	29.35835 AU	min. Earth dist.	2958 Jun 01 20:03	11° ♂ 18'05	29.35590 AU
direct	2950 Aug 03 08:54	22° ℓ 31'16		direct	2958 Aug 21 06:51	9° ♂ 55'06	
conjunction	2950 Nov 17 08:28	25° ℓ 01'24	1°37'34	conjunction	2958 Dec 04 14:25	12° ♂ 24'50	1°31'43
minimum elong	2950 Nov 17 08:28	25° ℓ 01'24	1°37'34	minimum elong	2958 Dec 04 14:25	12° ♂ 24'50	1°31'43
max. Earth dist.	2950 Nov 16 12:09	24° ℓ 59'30	31.35859 AU	max. Earth dist.	2958 Dec 03 20:01	12° ♂ 23'06	31.35229 AU
retrograde	2951 Feb 27 10:28	27° ℓ 27'45		retrograde	2959 Mar 16 20:42	14° ♂ 51'36	
opposition	2951 May 16 15:58	26° ℓ 05'55	1°44'05	opposition	2959 Jun 03 13:28	13° ♂ 29'40	1°37'17
min. Earth dist.	2951 May 17 11:38	26° ℓ 04'34	29.36108 AU	min. Earth dist.	2959 Jun 04 06:16	13° ♂ 28'31	29.35032 AU
direct	2951 Aug 05 18:11	24° ℓ 41'24		direct	2959 Aug 23 17:58	12° ♂ 05'25	
conjunction	2951 Nov 19 18:19	27° ℓ 11'31	1°37'19	conjunction	2959 Dec 06 23:56	14° ♂ 35'03	1°30'24
minimum elong	2951 Nov 19 18:19	27° ℓ 11'31	1°37'19	minimum elong	2959 Dec 06 23:56	14° ♂ 35'03	1°30'24
max. Earth dist.	2951 Nov 18 22:31	27° ℓ 09'40	31.36143 AU	max. Earth dist.	2959 Dec 06 06:20	14° ♂ 33'24	31.34657 AU
retrograde	2952 Feb 29 21:36	29° ℓ 37'56		retrograde	2960 Mar 18 06:32	17° ♂ 01'52	
opposition	2952 May 18 03:23	28° ℓ 16'08	1°43'45	opposition	2960 Jun 05 01:29	15° ♂ 39'51	1°35'48
min. Earth dist.	2952 May 18 21:54	28° ℓ 14'52	29.36370 AU	min. Earth dist.	2960 Jun 05 18:39	15° ♂ 38'41	29.34471 AU
direct	2952 Aug 07 07:18	26° ℓ 51'42		direct	2960 Aug 25 03:53	14° ♂ 15'36	
max. Earth dist.	2952 Nov 20 08:06	29° ℓ 19'56	31.36379 AU				
conjunction	2952 Nov 21 04:02	29° ℓ 21'48	1°36'55	conjunction	2960 Dec 08 09:13	16° ♂ 45'08	1°28'57
minimum elong	2952 Nov 21 04:02	29° ℓ 21'48	1°36'56	minimum elong	2960 Dec 08 09:13	16° ♂ 45'08	1°28'57
	2952 Dec 08 08:45	0° ♂		max. Earth dist.	2960 Dec 07 16:43	16° ♂ 43'35	31.34123 AU
retrograde	2953 Mar 03 10:00	1° ♂ 48'18		retrograde	2961 Mar 20 16:59	19° ♂ 12'00	
opposition	2953 May 20 15:01	0° ♂ 26'30	1°43'15	opposition	2961 Jun 07 13:24	17° ♂ 49'55	1°34'11
min. Earth dist.	2953 May 21 09:50	0° ♂ 25'14	29.36580 AU	min. Earth dist.	2961 Jun 08 04:52	17° ♂ 48'53	29.33961 AU
	2953 Jun 06 03:55	30° ♂ ℓ		direct	2961 Aug 27 16:52	16° ♂ 25'41	
direct	2953 Aug 09 18:23	29° ℓ 02'09		conjunction	2961 Dec 10 18:32	18° ♂ 55'09	1°27'22
	2953 Oct 10 06:23	0° ♂		minimum elong	2961 Dec 10 18:33	18° ♂ 55'09	1°27'22
				max. Earth dist.	2961 Dec 10 02:15	18° ♂ 53'37	31.33656 AU
conjunction	2953 Nov 23 13:54	1° ♂ 32'13	1°36'23	retrograde	2962 Mar 23 05:00	21° ♂ 22'05	
minimum elong	2953 Nov 23 13:54	1° ♂ 32'13	1°36'23	opposition	2962 Jun 10 01:17	19° ♂ 59'58	1°32'26
max. Earth dist.	2953 Nov 22 18:58	1° ♂ 30'27	31.36542 AU	min. Earth dist.	2962 Jun 10 16:27	19° ♂ 58'56	29.33545 AU
retrograde	2954 Mar 05 19:29	3° ♂ 58'47		direct	2962 Aug 30 02:51	18° ♂ 35'45	
opposition	2954 May 23 02:35	2° ♂ 37'01	1°42'37				
min. Earth dist.	2954 May 23 21:03	2° ♂ 35'46	29.36676 AU	conjunction	2962 Dec 13 03:56	21° ♂ 05'10	1°25'40

minimum elong	2962 Dec 13 03:56	21° 2 05'10	1°25'40	conjunction	2970 Dec 30 06:36	8° 3 29'30	1°07'48
max. Earth dist.	2962 Dec 12 13:15	21° 2 03'47	31.33281 AU	minimum elong	2970 Dec 30 06:36	8° 3 29'30	1°07'49
retrograde	2963 Mar 25 14:40	23° 2 32'12		max. Earth dist.	2970 Dec 29 19:35	8° 3 28'27	31.28761 AU
opposition	2963 Jun 12 13:16	22° 2 10'03	1°30'33	retrograde	2971 Apr 12 06:25	10° 3 57'29	
min. Earth dist.	2963 Jun 13 03:28	22° 2 09'06	29.33185 AU	opposition	2971 Jun 30 15:55	9° 3 35'04	1°11'01
direct	2963 Sep 01 15:14	20° 2 45'54		min. Earth dist.	2971 Jul 01 02:01	9° 3 34'23	29.28299 AU
				direct	2971 Sep 19 09:21	8° 3 11'14	
conjunction	2963 Dec 15 13:06	23° 2 15'16	1°23'50				
minimum elong	2963 Dec 15 13:06	23° 2 15'16	1°23'50	conjunction	2972 Jan 01 15:50	10° 3 40'13	1°05'07
max. Earth dist.	2963 Dec 14 22:12	23° 2 13'52	31.32951 AU	minimum elong	2972 Jan 01 15:50	10° 3 40'13	1°05'06
retrograde	2964 Mar 27 02:46	25° 2 42'25		max. Earth dist.	2972 Jan 01 06:33	10° 3 39'21	31.27738 AU
opposition	2964 Jun 14 01:20	24° 2 20'16	1°28'32	retrograde	2972 Apr 13 16:13	13° 3 08'18	
min. Earth dist.	2964 Jun 14 14:41	24° 2 19'22	29.32868 AU	opposition	2972 Jul 02 04:27	11° 3 45'48	1°08'05
direct	2964 Sep 03 02:22	22° 2 56'11		min. Earth dist.	2972 Jul 02 13:29	11° 3 45'12	29.27261 AU
				direct	2972 Sep 20 21:46	10° 3 21'58	
conjunction	2964 Dec 16 22:30	25° 2 25'31	1°21'53				
minimum elong	2964 Dec 16 22:30	25° 2 25'31	1°21'53	conjunction	2973 Jan 03 00:56	12° 3 50'52	1°02'19
max. Earth dist.	2964 Dec 16 09:25	25° 2 24'17	31.32634 AU	minimum elong	2973 Jan 03 00:56	12° 3 50'52	1°02'19
retrograde	2965 Mar 29 12:49	27° 2 52'46		max. Earth dist.	2973 Jan 02 15:36	12° 3 49'59	31.26724 AU
opposition	2965 Jun 16 13:34	26° 2 30'37	1°26'23	retrograde	2973 Apr 16 05:00	15° 3 19'04	
min. Earth dist.	2965 Jun 17 02:49	26° 2 29'43	29.32532 AU	opposition	2973 Jul 04 16:57	13° 3 56'29	1°05'03
direct	2965 Sep 05 15:12	25° 2 06'36		min. Earth dist.	2973 Jul 05 00:49	13° 3 55'57	29.26286 AU
				direct	2973 Sep 23 09:11	12° 3 32'39	
conjunction	2965 Dec 19 07:39	27° 2 35'54	1°19'48				
minimum elong	2965 Dec 19 07:39	27° 2 35'54	1°19'48	conjunction	2974 Jan 05 10:08	15° 3 01'30	0°59'26
max. Earth dist.	2965 Dec 18 18:15	27° 2 34'39	31.32282 AU	minimum elong	2974 Jan 05 10:08	15° 3 01'30	0°59'26
	2966 Mar 17 23:43	0° 3		max. Earth dist.	2974 Jan 05 02:53	15° 3 00'49	31.25787 AU
retrograde	2966 Apr 01 00:36	0° 3 03'17		retrograde	2974 Apr 18 15:45	17° 3 29'49	
	2966 Apr 15 02:41	30° R 2		opposition	2974 Jul 07 05:31	16° 3 07'09	1°01'56
opposition	2966 Jun 19 01:44	28° 2 41'08	1°24'06	min. Earth dist.	2974 Jul 07 12:50	16° 3 06'40	29.25391 AU
min. Earth dist.	2966 Jun 19 13:39	28° 2 40'20	29.32139 AU	direct	2974 Sep 25 22:15	14° 3 43'21	
direct	2966 Sep 08 02:20	27° 2 17'11					
				conjunction	2975 Jan 07 19:14	17° 3 12'09	0°56'28
conjunction	2966 Dec 21 17:06	29° 2 46'27	1°17'37	minimum elong	2975 Jan 07 19:14	17° 3 12'09	0°56'28
minimum elong	2966 Dec 21 17:07	29° 2 46'27	1°17'37	max. Earth dist.	2975 Jan 07 12:09	17° 3 11'29	31.24954 AU
max. Earth dist.	2966 Dec 21 04:51	29° 2 45'18	31.31834 AU	retrograde	2975 Apr 21 03:38	19° 3 40'36	
	2966 Dec 27 17:12	0° 3		opposition	2975 Jul 09 17:55	18° 3 17'54	0°58'43
retrograde	2967 Apr 03 09:27	2° 3 13'58		min. Earth dist.	2975 Jul 09 23:21	18° 3 17'32	29.24604 AU
opposition	2967 Jun 21 14:04	0° 3 51'47	1°21'42	direct	2975 Sep 28 09:14	16° 3 54'08	
min. Earth dist.	2967 Jun 22 02:32	0° 3 50'57	29.31633 AU				
	2967 Jul 25 23:56	30° R 2		conjunction	2976 Jan 10 04:29	19° 3 22'54	0°53'25
direct	2967 Sep 10 13:48	29° 2 27'54		minimum elong	2976 Jan 10 04:29	19° 3 22'54	0°53'25
	2967 Oct 25 08:49	0° 3		max. Earth dist.	2976 Jan 09 22:59	19° 3 22'23	31.24212 AU
				retrograde	2976 Apr 22 13:00	21° 3 51'30	
conjunction	2967 Dec 24 02:30	1° 3 57'08	1°15'19	opposition	2976 Jul 11 06:42	20° 3 28'46	0°55'24
minimum elong	2967 Dec 24 02:30	1° 3 57'08	1°15'19	min. Earth dist.	2976 Jul 11 12:03	20° 3 28'25	29.23899 AU
max. Earth dist.	2967 Dec 23 14:18	1° 3 55'59	31.31276 AU	direct	2976 Sep 29 21:13	19° 3 05'04	
retrograde	2968 Apr 04 20:27	4° 3 24'46					
opposition	2968 Jun 23 02:28	3° 3 02'34	1°19'12	conjunction	2977 Jan 11 13:35	21° 3 33'48	0°50'17
min. Earth dist.	2968 Jun 23 13:26	3° 3 01'50	29.30997 AU	minimum elong	2977 Jan 11 13:35	21° 3 33'48	0°50'17
direct	2968 Sep 12 00:59	1° 3 38'43		max. Earth dist.	2977 Jan 11 08:52	21° 3 33'21	31.23548 AU
				retrograde	2977 Apr 25 00:39	24° 3 02'34	
conjunction	2968 Dec 25 11:50	4° 3 07'54	1°12'55	opposition	2977 Jul 13 19:20	22° 3 39'48	0°52'01
minimum elong	2968 Dec 25 11:50	4° 3 07'54	1°12'55	min. Earth dist.	2977 Jul 13 22:45	22° 3 39'34	29.23241 AU
max. Earth dist.	2968 Dec 25 00:08	4° 3 06'48	31.30566 AU	direct	2977 Oct 02 08:53	21° 3 16'09	
retrograde	2969 Apr 07 07:05	6° 3 35'40					
opposition	2969 Jun 25 15:05	5° 3 13'25	1°16'34	conjunction	2978 Jan 13 22:54	23° 3 44'51	0°47'05
min. Earth dist.	2969 Jun 26 02:47	5° 3 12'38	29.30218 AU	minimum elong	2978 Jan 13 22:54	23° 3 44'51	0°47'05
direct	2969 Sep 14 10:57	3° 3 49'35		max. Earth dist.	2978 Jan 13 18:54	23° 3 44'29	31.22893 AU
				retrograde	2978 Apr 27 11:28	26° 3 13'48	
conjunction	2969 Dec 27 21:18	6° 3 18'42	1°10'25	opposition	2978 Jul 16 08:01	24° 3 51'00	0°48'33
minimum elong	2969 Dec 27 21:18	6° 3 18'42	1°10'25	min. Earth dist.	2978 Jul 16 11:45	24° 3 50'45	29.22584 AU
max. Earth dist.	2969 Dec 27 10:28	6° 3 17'41	31.29727 AU	direct	2978 Oct 04 18:50	23° 3 27'25	
retrograde	2970 Apr 09 17:54	8° 3 46'35					
opposition	2970 Jun 28 03:22	7° 3 24'16	1°13'51	conjunction	2979 Jan 16 08:20	25° 3 56'05	0°43'48
min. Earth dist.	2970 Jun 28 13:35	7° 3 23'35	29.29301 AU	minimum elong	2979 Jan 16 08:21	25° 3 56'05	0°43'48
direct	2970 Sep 16 23:35	6° 3 00'26		max. Earth dist.	2979 Jan 16 05:37	25° 3 55'50	31.22222 AU

retrograde	2979 Apr 29 22:17	28° $\overline{3}$ 25'11		behind sun end	2987 Feb 02 14:21	13° \approx 28'31	
opposition	2979 Jul 18 20:49	27° $\overline{3}$ 02'22	0°45'00	max. Earth dist.	2987 Feb 02 15:21	13° \approx 28'37	31.13819 AU
min. Earth dist.	2979 Jul 18 23:02	27° $\overline{3}$ 02'13	29.21871 AU		2987 Mar 17 20:14	15° \approx	
direct	2979 Oct 07 06:43	25° $\overline{3}$ 38'50		retrograde	2987 May 17 21:28	15° \approx 58'39	
					2987 Jul 21 16:59	15° \approx	
conjunction	2980 Jan 18 17:39	28° $\overline{3}$ 07'29	0°40'27	opposition	2987 Aug 06 04:42	14° \approx 35'11	0°14'43
minimum elong	2980 Jan 18 17:39	28° $\overline{3}$ 07'29	0°40'27	min. Earth dist.	2987 Aug 06 01:23	14° \approx 35'25	29.13322 AU
max. Earth dist.	2980 Jan 18 14:46	28° $\overline{3}$ 07'12	31.21469 AU	direct	2987 Oct 25 02:18	13° \approx 11'46	
	2980 Mar 14 20:22	0° \approx			2988 Jan 18 02:43	15° \approx	
retrograde	2980 May 01 10:58	0° \approx 36'45					
	2980 Jun 20 05:40	30° \approx		conjunction	2988 Feb 04 22:08	15° \approx 40'02	0°11'59
opposition	2980 Jul 20 09:50	29° $\overline{3}$ 13'53	0°41'24	minimum elong	2988 Feb 04 22:08	15° \approx 40'02	0°11'59
min. Earth dist.	2980 Jul 20 11:54	29° $\overline{3}$ 13'45	29.21076 AU	behind sun begin	2988 Feb 04 17:40	15° \approx 39'38	
direct	2980 Oct 08 15:48	27° $\overline{3}$ 50'24		behind sun end	2988 Feb 05 02:36	15° \approx 40'26	
	2981 Jan 11 18:03	0° \approx		max. Earth dist.	2988 Feb 05 02:40	15° \approx 40'27	31.12841 AU
				retrograde	2988 May 19 08:22	18° \approx 10'31	
conjunction	2981 Jan 20 03:17	0° \approx 19'00	0°37'02	opposition	2988 Aug 07 17:43	16° \approx 47'00	0°10'47
minimum elong	2981 Jan 20 03:17	0° \approx 19'00	0°37'03	min. Earth dist.	2988 Aug 07 12:27	16° \approx 47'22	29.12383 AU
max. Earth dist.	2981 Jan 20 01:57	0° \approx 18'52	31.20616 AU	direct	2988 Oct 26 14:06	15° \approx 23'38	
retrograde	2981 May 03 21:57	2° \approx 48'26					
opposition	2981 Jul 22 22:45	1° \approx 25'30	0°37'43	conjunction	2989 Feb 06 07:46	17° \approx 51'54	0°08'17
min. Earth dist.	2981 Jul 23 00:02	1° \approx 25'25	29.20152 AU	minimum elong	2989 Feb 06 07:45	17° \approx 51'54	0°08'18
direct	2981 Oct 11 04:03	0° \approx 02'02		behind sun begin	2989 Feb 06 02:05	17° \approx 51'23	
				behind sun end	2989 Feb 06 13:26	17° \approx 52'25	
conjunction	2982 Jan 22 12:48	2° \approx 30'35	0°33'35	max. Earth dist.	2989 Feb 06 12:23	17° \approx 52'19	31.11946 AU
minimum elong	2982 Jan 22 12:48	2° \approx 30'35	0°33'35	retrograde	2989 May 21 21:15	20° \approx 22'35	
max. Earth dist.	2982 Jan 22 10:56	2° \approx 30'25	31.19633 AU	opposition	2989 Aug 10 06:45	18° \approx 59'02	0°06'48
retrograde	2982 May 06 11:41	5° \approx 00'10		min. Earth dist.	2989 Aug 10 01:06	18° \approx 59'25	29.11531 AU
opposition	2982 Jul 25 11:44	3° \approx 37'09	0°34'00	direct	2989 Oct 28 22:35	17° \approx 35'43	
min. Earth dist.	2982 Jul 25 12:19	3° \approx 37'07	29.19102 AU				
direct	2982 Oct 13 15:01	2° \approx 13'41		conjunction	2990 Feb 08 17:36	20° \approx 04'00	0°04'35
				minimum elong	2990 Feb 08 17:36	20° \approx 04'00	0°04'35
conjunction	2983 Jan 24 22:26	4° \approx 42'12	0°30'04	behind sun begin	2990 Feb 08 11:20	20° \approx 03'26	
minimum elong	2983 Jan 24 22:26	4° \approx 42'12	0°30'04	behind sun end	2990 Feb 08 23:53	20° \approx 04'34	
max. Earth dist.	2983 Jan 24 22:10	4° \approx 42'10	31.18514 AU	max. Earth dist.	2990 Feb 09 00:08	20° \approx 04'35	31.11114 AU
retrograde	2983 May 08 22:59	7° \approx 11'54		retrograde	2990 May 24 08:48	22° \approx 34'52	
opposition	2983 Jul 28 00:44	5° \approx 48'48	0°30'13	opposition	2990 Aug 12 19:49	21° \approx 11'18	0°02'49
min. Earth dist.	2983 Jul 28 01:12	5° \approx 48'46	29.17924 AU	min. Earth dist.	2990 Aug 12 13:05	21° \approx 11'46	29.10702 AU
direct	2983 Oct 16 03:45	4° \approx 25'20		direct	2990 Oct 31 10:27	19° \approx 48'03	
conjunction	2984 Jan 27 07:57	6° \approx 53'46	0°26'31	conjunction	2991 Feb 11 03:21	22° \approx 16'20	0°00'49
minimum elong	2984 Jan 27 07:57	6° \approx 53'46	0°26'31	minimum elong	2991 Feb 11 03:20	22° \approx 16'20	0°00'48
max. Earth dist.	2984 Jan 27 07:39	6° \approx 53'45	31.17316 AU	behind sun begin	2991 Feb 10 20:57	22° \approx 15'45	
retrograde	2984 May 10 11:45	9° \approx 23'36		behind sun end	2991 Feb 11 09:43	22° \approx 16'55	
opposition	2984 Jul 29 13:45	8° \approx 00'24	0°26'24	max. Earth dist.	2991 Feb 11 09:40	22° \approx 16'54	31.10291 AU
min. Earth dist.	2984 Jul 29 12:33	8° \approx 00'29	29.16705 AU	desc. node	2991 Apr 29 00:58	24° \approx 34'38	
direct	2984 Oct 17 15:10	6° \approx 36'55		retrograde	2991 May 26 23:17	24° \approx 47'25	
				opposition	2991 Aug 15 08:59	23° \approx 23'49	0°-1'-10
conjunction	2985 Jan 28 17:25	9° \approx 05'18	0°22'56	min. Earth dist.	2991 Aug 15 01:25	23° \approx 24'20	29.09874 AU
minimum elong	2985 Jan 28 17:26	9° \approx 05'18	0°22'56	direct	2991 Nov 02 20:35	22° \approx 00'37	
max. Earth dist.	2985 Jan 28 18:31	9° \approx 05'24	31.16087 AU				
retrograde	2985 May 12 22:14	11° \approx 35'16		conjunction	2992 Feb 13 13:25	24° \approx 28'55	0°-3'-1
opposition	2985 Aug 01 02:50	10° \approx 11'57	0°22'32	minimum elong	2992 Feb 13 13:25	24° \approx 28'55	0°03'02
min. Earth dist.	2985 Aug 01 01:39	10° \approx 12'02	29.15494 AU	behind sun begin	2992 Feb 13 07:02	24° \approx 28'21	
direct	2985 Oct 20 03:43	8° \approx 48'29		behind sun end	2992 Feb 13 19:48	24° \approx 29'30	
				max. Earth dist.	2992 Feb 13 21:26	24° \approx 29'40	31.09435 AU
conjunction	2986 Jan 31 03:00	11° \approx 16'48	0°19'18	retrograde	2992 May 28 11:41	27° \approx 00'12	
minimum elong	2986 Jan 31 03:00	11° \approx 16'48	0°19'18	opposition	2992 Aug 16 22:18	25° \approx 36'34	0°-5'-10
max. Earth dist.	2986 Jan 31 04:59	11° \approx 16'59	31.14913 AU	min. Earth dist.	2992 Aug 16 14:36	25° \approx 37'05	29.08986 AU
retrograde	2986 May 15 10:27	13° \approx 46'55		direct	2992 Nov 04 08:13	24° \approx 13'25	
opposition	2986 Aug 03 15:35	12° \approx 23'31	0°18'39				
min. Earth dist.	2986 Aug 03 12:20	12° \approx 23'45	29.14357 AU	conjunction	2993 Feb 14 23:27	26° \approx 41'43	0°-6'-44
direct	2986 Oct 22 15:57	11° \approx 00'03		minimum elong	2993 Feb 14 23:28	26° \approx 41'43	0°06'45
				behind sun begin	2993 Feb 14 17:28	26° \approx 41'10	
conjunction	2987 Feb 02 12:34	13° \approx 28'22	0°15'39	behind sun end	2993 Feb 15 05:27	26° \approx 42'16	
minimum elong	2987 Feb 02 12:34	13° \approx 28'22	0°15'40	max. Earth dist.	2993 Feb 15 07:21	26° \approx 42'27	31.08510 AU
behind sun begin	2987 Feb 02 10:48	13° \approx 28'12		retrograde	2993 May 31 01:43	29° \approx 13'11	

opposition	2993 Aug 19 11:32	27° 49 '29	0°-9'-9	conjunction	3001 Mar 05 10:19	14° 25 '04	0°-35'-47
min. Earth dist.	2993 Aug 19 02:33	27° 50 '06	29.08006 AU	minimum elong	3001 Mar 05 10:19	14° 25 '04	0°35'48
direct	2993 Nov 06 19:13	26° 26 '22		max. Earth dist.	3001 Mar 06 00:39	14° 26 '26	30.98888 AU
				retrograde	3001 Jun 19 03:13	16° 57 '40	
conjunction	2994 Feb 17 09:48	28° 54 '40	0°-10'-27	opposition	3001 Sep 07 20:56	15° 33 '13	0°-40'-8
minimum elong	2994 Feb 17 09:48	28° 54 '40	0°10'28	min. Earth dist.	3001 Sep 07 06:55	15° 34 '11	28.98438 AU
behind sun begin	2994 Feb 17 04:44	28° 54 '13		direct	3001 Nov 25 16:36	14° 10 '01	
behind sun end	2994 Feb 17 14:52	28° 55 '08					
max. Earth dist.	2994 Feb 17 18:25	28° 55 '28	31.07453 AU	conjunction	3002 Mar 07 20:54	16° 38 '07	0°-39'-15
	2994 Mar 19 00:50	0° 0 '		minimum elong	3002 Mar 07 20:54	16° 38 '07	0°39'16
retrograde	2994 Jun 02 14:04	1° 26 '18		max. Earth dist.	3002 Mar 08 11:22	16° 39 '29	30.97968 AU
opposition	2994 Aug 22 00:47	0° 02 '32	0°-13'-8	retrograde	3002 Jun 21 17:41	19° 10 '52	
min. Earth dist.	2994 Aug 21 16:18	0° 03 '06	29.06887 AU	opposition	3002 Sep 10 09:54	17° 46 '23	0°-43'-48
	2994 Aug 23 14:01	30° 0 '		min. Earth dist.	3002 Sep 09 18:25	17° 47 '27	28.97561 AU
direct	2994 Nov 09 08:17	28° 39 '25		direct	3002 Nov 28 03:17	16° 23 '12	
	2995 Jan 20 00:26	0° 0 '					
				conjunction	3003 Mar 10 07:38	18° 51 '21	0°-42'-39
conjunction	2995 Feb 19 20:09	1° 07 '42	0°-14'-9	minimum elong	3003 Mar 10 07:37	18° 51 '21	0°42'40
minimum elong	2995 Feb 19 20:09	1° 07 '42	0°14'10	max. Earth dist.	3003 Mar 10 23:09	18° 52 '49	30.97114 AU
behind sun begin	2995 Feb 19 16:55	1° 07 '24		retrograde	3003 Jun 24 06:59	21° 24 '17	
behind sun end	2995 Feb 19 23:23	1° 08 '00		opposition	3003 Sep 12 23:09	19° 59 '46	0°-47'-25
max. Earth dist.	2995 Feb 20 05:13	1° 08 '33	31.06277 AU	min. Earth dist.	3003 Sep 12 07:55	20° 00 '48	28.96736 AU
retrograde	2995 Jun 05 04:06	3° 39 '28		direct	3003 Nov 30 15:24	18° 36 '38	
opposition	2995 Aug 24 14:02	2° 15 '36	0°-17'-5				
min. Earth dist.	2995 Aug 24 03:59	2° 16 '17	29.05644 AU	conjunction	3004 Mar 11 18:25	21° 04 '48	0°-46'00
direct	2995 Nov 11 21:23	0° 52 '28		minimum elong	3004 Mar 11 18:25	21° 04 '48	0°46'01
				max. Earth dist.	3004 Mar 12 10:40	21° 06 '20	30.96306 AU
conjunction	2996 Feb 22 06:20	3° 20 '43	0°-17'-50	retrograde	3004 Jun 25 21:49	23° 37 '54	
minimum elong	2996 Feb 22 06:20	3° 20 '43	0°17'51	opposition	3004 Sep 14 12:17	22° 13 '22	0°-50'-57
max. Earth dist.	2996 Feb 22 15:40	3° 21 '35	31.04981 AU	min. Earth dist.	3004 Sep 13 19:30	22° 14 '31	28.95926 AU
retrograde	2996 Jun 06 15:08	5° 52 '37		direct	3004 Dec 02 03:52	20° 50 '16	
opposition	2996 Aug 26 03:25	4° 28 '38	0°-21'-1				
min. Earth dist.	2996 Aug 25 17:50	4° 29 '17	29.04319 AU	conjunction	3005 Mar 14 05:26	23° 18 '29	0°-49'-17
direct	2996 Nov 13 08:37	3° 05 '29		minimum elong	3005 Mar 14 05:26	23° 18 '29	0°49'17
				max. Earth dist.	3005 Mar 14 21:46	23° 20 '02	30.95471 AU
conjunction	2997 Feb 23 16:45	5° 33 '40	0°-21'-30	retrograde	3005 Jun 28 10:19	25° 51 '46	
minimum elong	2997 Feb 23 16:45	5° 33 '40	0°21'31	min. Earth dist.	3005 Sep 16 09:24	24° 28 '18	28.95077 AU
max. Earth dist.	2997 Feb 24 03:31	5° 34 '40	31.03639 AU	opposition	3005 Sep 17 01:25	24° 27 '12	0°-54'-25
retrograde	2997 Jun 09 02:09	8° 05 '40		direct	3005 Dec 04 14:42	23° 04 '08	
opposition	2997 Aug 28 16:24	6° 41 '35	0°-24'-56				
min. Earth dist.	2997 Aug 28 05:16	6° 42 '20	29.02974 AU	conjunction	3006 Mar 16 16:44	25° 32 '23	0°-52'-29
direct	2997 Nov 15 21:28	5° 18 '23		minimum elong	3006 Mar 16 16:43	25° 32 '23	0°52'30
				max. Earth dist.	3006 Mar 17 10:06	25° 34 '02	30.94581 AU
conjunction	2998 Feb 26 03:01	7° 46 '32	0°-25'-8	retrograde	3006 Jun 30 23:15	28° 05 '49	
minimum elong	2998 Feb 26 03:01	7° 46 '32	0°25'09	opposition	3006 Sep 19 14:32	26° 41 '13	0°-57'-49
max. Earth dist.	2998 Feb 26 13:37	7° 47 '32	31.02308 AU	min. Earth dist.	3006 Sep 18 21:23	26° 42 '23	28.94137 AU
retrograde	2998 Jun 11 14:45	10° 18 '40		direct	3006 Dec 07 03:47	25° 18 '09	
opposition	2998 Aug 31 05:34	8° 54 '28	0°-28'-48				
min. Earth dist.	2998 Aug 30 18:12	8° 55 '14	29.01685 AU	conjunction	3007 Mar 19 03:50	27° 46 '26	0°-55'-37
direct	2998 Nov 18 07:23	7° 31 '14		minimum elong	3007 Mar 19 03:50	27° 46 '26	0°55'38
				max. Earth dist.	3007 Mar 19 20:30	27° 48 '01	30.93585 AU
conjunction	2999 Feb 28 13:24	9° 59 '20	0°-28'-43		3007 May 29 07:33	0° 0 '	
minimum elong	2999 Feb 28 13:24	9° 59 '20	0°28'44	retrograde	3007 Jul 03 12:56	0° 20 '01	
max. Earth dist.	2999 Mar 01 01:57	10° 00 '32	31.01053 AU		3007 Aug 08 12:21	30° 0 '	
retrograde	2999 Jun 14 01:45	12° 31 '37		min. Earth dist.	3007 Sep 21 11:03	28° 56 '30	28.93101 AU
opposition	2999 Sep 02 18:41	11° 07 '19	0°-32'-37	opposition	3007 Sep 22 03:51	28° 55 '21	-1°-1'-7
min. Earth dist.	2999 Sep 02 06:02	11° 08 '11	29.00481 AU	direct	3007 Dec 09 14:14	27° 32 '17	
direct	2999 Nov 20 19:52	9° 44 '05					
				conjunction	3008 Mar 20 15:18	0° 00 '34	0°-58'-39
conjunction	3000 Mar 02 23:46	12° 12 '10	0°-32'-17	minimum elong	3008 Mar 20 15:18	0° 00 '34	0°58'40
minimum elong	3000 Mar 02 23:46	12° 12 '10	0°32'18		3008 Mar 20 09:20	0° 0 '	
max. Earth dist.	3000 Mar 03 12:15	12° 13 '21	30.99912 AU	max. Earth dist.	3008 Mar 21 09:17	0° 02 '16	30.92500 AU
retrograde	3000 Jun 16 15:20	14° 44 '36		retrograde	3008 Jul 05 00:11	2° 34 '16	
opposition	3000 Sep 05 07:48	13° 20 '13	0°-36'-24	opposition	3008 Sep 23 16:55	1° 09 '31	-1°-4'-20
min. Earth dist.	3000 Sep 04 18:10	13° 21 '09	28.99411 AU	min. Earth dist.	3008 Sep 22 23:27	1° 10 '43	28.91977 AU
direct	3000 Nov 23 05:32	11° 56 '59			3008 Nov 12 08:48	30° 0 '	
				direct	3008 Dec 11 03:05	29° 46 '26	

	3009 Jan 08 03:59	0°♈		minimum elong	3017 Apr 09 23:56	20°♈08'41	1°21'40
				max. Earth dist.	3017 Apr 10 22:39	20°♈10'50	30.85331 AU
conjunction	3009 Mar 23 02:36	2°♈14'42	-1°-1'-37	retrograde	3017 Jul 26 00:18	22°♈43'18	
minimum elong	3009 Mar 23 02:35	2°♈14'42	1°01'38	opposition	3017 Oct 14 12:28	21°♈18'07	-1°-28'-23
max. Earth dist.	3009 Mar 23 19:57	2°♈16'20	30.91359 AU	min. Earth dist.	3017 Oct 13 15:07	21°♈19'36	28.85206 AU
retrograde	3009 Jul 07 13:19	4°♈48'30		direct	3017 Dec 31 10:51	19°♈54'58	
opposition	3009 Sep 26 05:58	3°♈23'39	-1°-7'-26				
min. Earth dist.	3009 Sep 25 12:09	3°♈24'53	28.90836 AU	conjunction	3018 Apr 12 12:06	22°♈23'31	-1°-23'-37
direct	3009 Dec 13 13:07	2°♈00'31		minimum elong	3018 Apr 12 12:06	22°♈23'31	1°23'38
				max. Earth dist.	3018 Apr 13 09:49	22°♈25'34	30.84904 AU
conjunction	3010 Mar 25 14:02	4°♈28'48	-1°-4'-29	retrograde	3018 Jul 28 14:11	24°♈58'13	
minimum elong	3010 Mar 25 14:02	4°♈28'48	1°04'30	min. Earth dist.	3018 Oct 16 04:01	23°♈34'31	28.84760 AU
max. Earth dist.	3010 Mar 26 08:51	4°♈30'35	30.90214 AU	opposition	3018 Oct 17 01:16	23°♈33'02	-1°-30'-27
retrograde	3010 Jul 10 00:48	7°♈02'42		direct	3019 Jan 02 21:19	22°♈09'53	
opposition	3010 Sep 28 18:52	5°♈37'45	-1°-10'-27				
min. Earth dist.	3010 Sep 28 00:56	5°♈39'00	28.89722 AU	conjunction	3019 Apr 15 00:37	24°♈38'29	-1°-25'-29
direct	3010 Dec 16 00:06	4°♈14'35		minimum elong	3019 Apr 15 00:37	24°♈38'29	1°25'30
				max. Earth dist.	3019 Apr 15 23:13	24°♈40'37	30.84408 AU
conjunction	3011 Mar 28 01:25	6°♈42'51	-1°-7'-15	retrograde	3019 Jul 31 02:28	27°♈13'16	
minimum elong	3011 Mar 28 01:25	6°♈42'51	1°07'16	opposition	3019 Oct 19 14:07	25°♈48'03	-1°-32'-22
max. Earth dist.	3011 Mar 28 20:14	6°♈44'38	30.89151 AU	min. Earth dist.	3019 Oct 18 17:18	25°♈49'30	28.84221 AU
retrograde	3011 Jul 12 15:02	9°♈16'51		direct	3020 Jan 05 08:49	24°♈24'53	
opposition	3011 Oct 01 07:46	7°♈51'50	-1°-13'-22				
min. Earth dist.	3011 Sep 30 12:33	7°♈53'10	28.88722 AU	conjunction	3020 Apr 16 13:05	26°♈53'31	-1°-27'-13
direct	3011 Dec 18 11:05	6°♈28'38		minimum elong	3020 Apr 16 13:05	26°♈53'31	1°27'13
				max. Earth dist.	3020 Apr 17 10:52	26°♈55'35	30.83830 AU
conjunction	3012 Mar 29 12:50	8°♈56'55	-1°-9'-55	retrograde	3020 Aug 01 16:20	29°♈28'21	
minimum elong	3012 Mar 29 12:50	8°♈56'55	1°09'56	min. Earth dist.	3020 Oct 20 05:36	28°♈04'35	28.83597 AU
max. Earth dist.	3012 Mar 30 08:38	8°♈58'48	30.88198 AU	opposition	3020 Oct 21 02:52	28°♈03'06	-1°-34'-9
retrograde	3012 Jul 14 04:00	11°♈31'01		direct	3021 Jan 06 20:11	26°♈39'53	
opposition	3012 Oct 02 20:42	10°♈05'56	-1°-16'-10				
min. Earth dist.	3012 Oct 02 01:42	10°♈07'15	28.87845 AU	conjunction	3021 Apr 19 01:43	29°♈08'32	-1°-28'-49
direct	3012 Dec 19 23:04	8°♈42'43		minimum elong	3021 Apr 19 01:43	29°♈08'32	1°28'50
				max. Earth dist.	3021 Apr 19 23:43	29°♈10'37	30.83158 AU
conjunction	3013 Apr 01 00:28	11°♈11'02	-1°-12'-29		3021 May 12 03:07	0°♈	
minimum elong	3013 Apr 01 00:28	11°♈11'01	1°12'30	retrograde	3021 Aug 04 04:27	1°♈43'25	
max. Earth dist.	3013 Apr 01 20:56	11°♈12'58	30.87396 AU	opposition	3021 Oct 23 15:28	0°♈18'06	-1°-35'-47
retrograde	3013 Jul 16 18:22	13°♈45'13		min. Earth dist.	3021 Oct 22 19:09	0°♈19'31	28.82905 AU
opposition	3013 Oct 05 09:17	12°♈20'05	-1°-18'-51		3021 Nov 03 13:03	30°♈♈	
min. Earth dist.	3013 Oct 04 12:43	12°♈21'31	28.87114 AU	direct	3022 Jan 09 07:46	28°♈54'50	
direct	3013 Dec 22 10:57	10°♈56'52			3022 Mar 13 15:51	0°♈	
conjunction	3014 Apr 03 12:08	13°♈25'13	-1°-14'-57	conjunction	3022 Apr 21 14:20	1°♈23'31	-1°-30'-17
minimum elong	3014 Apr 03 12:08	13°♈25'13	1°14'57	minimum elong	3022 Apr 21 14:20	1°♈23'31	1°30'18
max. Earth dist.	3014 Apr 04 08:47	13°♈27'10	30.86724 AU	max. Earth dist.	3022 Apr 22 12:22	1°♈25'36	30.82466 AU
retrograde	3014 Jul 19 07:37	15°♈59'31		retrograde	3022 Aug 06 18:36	3°♈58'24	
opposition	3014 Oct 07 22:10	14°♈34'22	-1°-21'-26	min. Earth dist.	3022 Oct 25 06:35	2°♈34'31	28.82219 AU
min. Earth dist.	3014 Oct 07 02:07	14°♈35'45	28.86517 AU	opposition	3022 Oct 26 03:58	2°♈33'02	-1°-37'-17
direct	3014 Dec 24 21:55	13°♈11'09		direct	3023 Jan 11 19:45	1°♈09'43	
conjunction	3015 Apr 05 23:50	15°♈39'32	-1°-17'-17	conjunction	3023 Apr 24 02:46	3°♈38'25	-1°-31'-37
minimum elong	3015 Apr 05 23:50	15°♈39'32	1°17'19	minimum elong	3023 Apr 24 02:46	3°♈38'25	1°31'38
max. Earth dist.	3015 Apr 06 21:51	15°♈41'37	30.86186 AU	max. Earth dist.	3023 Apr 25 00:40	3°♈40'29	30.81795 AU
retrograde	3015 Jul 21 22:04	18°♈13'56		retrograde	3023 Aug 09 07:52	6°♈13'21	
opposition	3015 Oct 10 10:56	16°♈48'46	-1°-23'-52	opposition	3023 Oct 28 16:34	4°♈47'55	-1°-38'-38
min. Earth dist.	3015 Oct 09 13:34	16°♈50'15	28.86027 AU	min. Earth dist.	3023 Oct 27 20:06	4°♈49'21	28.81594 AU
direct	3015 Dec 27 11:26	15°♈25'35		direct	3024 Jan 14 07:12	3°♈24'34	
conjunction	3016 Apr 07 11:43	17°♈54'01	-1°-19'-31	conjunction	3024 Apr 25 15:33	5°♈53'18	-1°-32'-48
minimum elong	3016 Apr 07 11:43	17°♈54'01	1°19'32	minimum elong	3024 Apr 25 15:33	5°♈53'18	1°32'49
max. Earth dist.	3016 Apr 08 09:10	17°♈56'03	30.85736 AU	max. Earth dist.	3024 Apr 26 14:24	5°♈55'28	30.81219 AU
retrograde	3016 Jul 23 12:18	20°♈28'32		retrograde	3024 Aug 10 22:28	8°♈28'14	
opposition	3016 Oct 11 23:44	19°♈03'21	-1°-26'-12	min. Earth dist.	3024 Oct 29 07:19	7°♈04'17	28.81072 AU
min. Earth dist.	3016 Oct 11 02:51	19°♈04'48	28.85616 AU	opposition	3024 Oct 30 04:48	7°♈02'47	-1°-39'-49
direct	3016 Dec 28 22:16	17°♈40'11		direct	3025 Jan 15 20:54	5°♈39'23	
conjunction	3017 Apr 09 23:56	20°♈08'41	-1°-21'-38	conjunction	3025 Apr 28 04:15	8°♈08'11	-1°-33'-51

minimum elong	3025 Apr 28 04:15	8°08'11	1°33'52	conjunction	3033 May 16 14:09	26°08'11'28	-1°-36'-56
max. Earth dist.	3025 Apr 29 02:20	8°08'10'16	30.80755 AU	minimum elong	3033 May 16 14:09	26°08'11'28	1°36'57
retrograde	3025 Aug 13 12:22	10°08'43'09		max. Earth dist.	3033 May 17 11:33	26°08'13'29	30.79912 AU
opposition	3025 Nov 01 17:13	9°08'17'41	-1°-40'-52	retrograde	3033 Aug 31 22:27	28°08'46'32	
min. Earth dist.	3025 Oct 31 20:18	9°08'19'09	28.80685 AU	opposition	3033 Nov 19 18:40	27°08'21'13	-1°-43'-31
direct	3026 Jan 18 08:06	7°08'54'16		min. Earth dist.	3033 Nov 18 23:08	27°08'22'36	28.79886 AU
				direct	3034 Feb 05 05:35	25°08'57'42	
conjunction	3026 Apr 30 17:04	10°08'23'07	-1°-34'-45				
minimum elong	3026 Apr 30 17:04	10°08'23'07	1°34'46	conjunction	3034 May 19 03:35	28°08'27'06	-1°-36'-39
max. Earth dist.	3026 May 01 16:24	10°08'25'19	30.80429 AU	minimum elong	3034 May 19 03:36	28°08'27'06	1°36'40
retrograde	3026 Aug 16 00:56	12°08'58'07		max. Earth dist.	3034 May 19 23:39	28°08'28'59	30.79646 AU
min. Earth dist.	3026 Nov 03 07:53	11°08'34'10	28.80425 AU		3034 Jul 02 03:17	0°08'00'00	
opposition	3026 Nov 04 05:28	11°08'32'39	-1°-41'-45	retrograde	3034 Sep 03 11:49	1°08'02'06	
direct	3027 Jan 20 20:52	10°08'09'15			3034 Nov 08 07:46	30°08'00'00	
conjunction	3027 May 03 05:53	12°08'38'10	-1°-35'-30	opposition	3034 Nov 22 06:43	29°08'36'45	-1°-43'-9
minimum elong	3027 May 03 05:52	12°08'38'10	1°35'32	min. Earth dist.	3034 Nov 21 12:22	29°08'38'02	28.79615 AU
max. Earth dist.	3027 May 04 04:17	12°08'40'17	30.80246 AU	direct	3035 Feb 07 17:05	28°08'13'08	
	3027 Jul 21 03:11	15°08'00'00			3035 May 02 15:41	0°08'00'00	
retrograde	3027 Aug 18 15:36	15°08'13'12		conjunction	3035 May 21 17:18	0°08'42'34	-1°-36'-13
	3027 Sep 16 09:19	15°08'00'00		minimum elong	3035 May 21 17:18	0°08'42'34	1°36'15
opposition	3027 Nov 06 17:45	13°08'47'46	-1°-42'-29	max. Earth dist.	3035 May 22 14:03	0°08'44'31	30.79380 AU
min. Earth dist.	3027 Nov 05 20:11	13°08'49'16	28.80312 AU	retrograde	3035 Sep 06 01:03	3°08'17'28	
direct	3028 Jan 23 07:39	12°08'24'21		opposition	3035 Nov 24 18:28	1°08'52'05	-1°-42'-36
				min. Earth dist.	3035 Nov 23 23:58	1°08'53'23	28.79360 AU
conjunction	3028 May 04 18:56	14°08'53'21	-1°-36'-7	direct	3036 Feb 10 06:38	0°08'28'24	
minimum elong	3028 May 04 18:56	14°08'53'21	1°36'08				
max. Earth dist.	3028 May 05 18:26	14°08'55'35	30.80179 AU	conjunction	3036 May 23 06:52	2°08'57'51	-1°-35'-39
	3028 May 07 17:13	15°08'00'00		minimum elong	3036 May 23 06:52	2°08'57'51	1°35'39
retrograde	3028 Aug 20 04:00	17°08'28'26		max. Earth dist.	3036 May 24 02:11	2°08'59'40	30.79162 AU
min. Earth dist.	3028 Nov 07 08:47	16°08'04'31	28.80284 AU	retrograde	3036 Sep 07 15:52	5°08'32'41	
opposition	3028 Nov 08 06:00	16°08'03'02	-1°-43'-3	opposition	3036 Nov 26 06:15	4°08'07'16	-1°-41'-55
	3028 Dec 20 15:45	15°08'00'00		min. Earth dist.	3036 Nov 25 12:09	4°08'08'32	28.79187 AU
direct	3029 Jan 24 19:13	14°08'39'39		direct	3037 Feb 11 18:51	2°08'43'30	
	3029 Feb 28 04:09	15°08'00'00					
conjunction	3029 May 07 08:05	17°08'08'43	-1°-36'-35	conjunction	3037 May 25 20:36	5°08'13'00	-1°-34'-56
minimum elong	3029 May 07 08:05	17°08'08'43	1°36'36	minimum elong	3037 May 25 20:36	5°08'13'00	1°34'57
max. Earth dist.	3029 May 08 06:43	17°08'10'52	30.80191 AU	max. Earth dist.	3037 May 26 16:44	5°08'14'53	30.79031 AU
retrograde	3029 Aug 22 17:25	19°08'43'50		retrograde	3037 Sep 10 03:16	7°08'47'44	
opposition	3029 Nov 10 18:03	18°08'18'29	-1°-43'-28	opposition	3037 Nov 28 17:49	6°08'22'19	-1°-41'-4
min. Earth dist.	3029 Nov 09 20:35	18°08'19'59	28.80315 AU	min. Earth dist.	3037 Nov 28 00:10	6°08'23'34	28.79114 AU
direct	3030 Jan 27 06:10	16°08'55'06		direct	3038 Feb 14 07:26	4°08'58'30	
conjunction	3030 May 09 21:24	19°08'24'16	-1°-36'-53	conjunction	3038 May 28 10:11	7°08'28'01	-1°-34'-4
minimum elong	3030 May 09 21:24	19°08'24'16	1°36'54	minimum elong	3038 May 28 10:12	7°08'28'01	1°34'04
max. Earth dist.	3030 May 10 20:13	19°08'26'26	30.80214 AU	max. Earth dist.	3038 May 29 05:19	7°08'29'49	30.79040 AU
retrograde	3030 Aug 25 05:20	21°08'59'25		retrograde	3038 Sep 12 16:53	10°08'02'41	
min. Earth dist.	3030 Nov 12 10:02	20°08'35'31	28.80328 AU	min. Earth dist.	3038 Nov 30 11:24	8°08'38'33	28.79198 AU
opposition	3030 Nov 13 06:20	20°08'34'06	-1°-43'-43	opposition	3038 Dec 01 05:25	8°08'37'17	-1°-40'-4
direct	3031 Jan 29 16:50	19°08'10'43		direct	3039 Feb 16 18:48	7°08'13'25	
conjunction	3031 May 12 10:47	21°08'39'58	-1°-37'-3	conjunction	3039 May 30 23:49	9°08'43'00	-1°-33'-4
minimum elong	3031 May 12 10:47	21°08'39'58	1°37'04	minimum elong	3039 May 30 23:49	9°08'43'00	1°33'05
max. Earth dist.	3031 May 13 09:02	21°08'42'04	30.80208 AU	max. Earth dist.	3039 May 31 19:22	9°08'44'50	30.79193 AU
retrograde	3031 Aug 27 19:49	24°08'15'07		retrograde	3039 Sep 15 04:32	12°08'17'36	
opposition	3031 Nov 15 18:30	22°08'49'49	-1°-43'-49	opposition	3039 Dec 03 17:03	10°08'52'14	-1°-38'-55
min. Earth dist.	3031 Nov 14 21:43	22°08'51'17	28.80278 AU	min. Earth dist.	3039 Dec 03 00:01	10°08'53'26	28.79426 AU
direct	3032 Feb 01 04:02	21°08'26'25		direct	3040 Feb 19 05:40	9°08'28'20	
conjunction	3032 May 14 00:24	23°08'55'44	-1°-37'-4	conjunction	3040 Jun 01 13:38	11°08'58'00	-1°-31'-54
minimum elong	3032 May 14 00:24	23°08'55'44	1°37'04	minimum elong	3040 Jun 01 13:38	11°08'58'00	1°31'55
max. Earth dist.	3032 May 14 21:46	23°08'57'45	30.80103 AU	max. Earth dist.	3040 Jun 02 08:38	11°08'59'47	30.79507 AU
retrograde	3032 Aug 29 08:25	26°08'30'52		retrograde	3040 Sep 16 18:17	14°08'32'32	
min. Earth dist.	3032 Nov 16 11:29	25°08'06'55	28.80126 AU	min. Earth dist.	3040 Dec 04 10:42	13°08'08'29	28.79799 AU
opposition	3032 Nov 17 06:39	25°08'05'34	-1°-43'-45	opposition	3040 Dec 05 04:23	13°08'07'14	-1°-37'-36
direct	3033 Feb 02 15:45	23°08'42'06		direct	3041 Feb 20 16:43	11°08'43'19	

conjunction	3041 Jun 04 03:29	14°II13'05	-1°-30'-37		3049 Apr 09 07:09	0°☾	
minimum elong	3041 Jun 04 03:29	14°II13'05	1°30'39				
max. Earth dist.	3041 Jun 04 21:58	14°II14'49	30.79935 AU	conjunction	3049 Jun 22 20:22	2°☾15'22	-1°-15'-30
retrograde	3041 Sep 19 05:58	16°II47'34		minimum elong	3049 Jun 22 20:22	2°☾15'22	1°15'31
opposition	3041 Dec 07 15:58	15°II22'20	-1°-36'-8	max. Earth dist.	3049 Jun 23 08:54	2°☾16'33	30.83140 AU
min. Earth dist.	3041 Dec 06 23:43	15°II23'29	28.80274 AU	retrograde	3049 Oct 07 15:22	4°☾49'00	
direct	3042 Feb 23 03:36	13°II58'26		opposition	3049 Dec 25 09:49	3°☾24'06	-1°-19'-26
				min. Earth dist.	3049 Dec 24 22:10	3°☾24'56	28.83417 AU
conjunction	3042 Jun 06 17:20	16°II28'17	-1°-29'-11	direct	3050 Mar 13 05:18	1°☾59'50	
minimum elong	3042 Jun 06 17:21	16°II28'17	1°29'11				
max. Earth dist.	3042 Jun 07 11:55	16°II30'02	30.80450 AU	conjunction	3050 Jun 25 10:15	4°☾30'10	-1°-13'-4
retrograde	3042 Sep 21 19:27	19°II02'44		minimum elong	3050 Jun 25 10:15	4°☾30'10	1°13'04
min. Earth dist.	3042 Dec 09 10:47	17°II38'45	28.80795 AU	max. Earth dist.	3050 Jun 25 22:18	4°☾31'18	30.83610 AU
opposition	3042 Dec 10 03:22	17°II37'35	-1°-34'-32	retrograde	3050 Oct 10 01:29	7°☾03'40	
direct	3043 Feb 25 16:15	16°II13'40		opposition	3050 Dec 27 20:51	5°☾38'47	-1°-16'-46
				min. Earth dist.	3050 Dec 27 10:35	5°☾39'31	28.83956 AU
conjunction	3043 Jun 09 07:22	18°II43'38	-1°-27'-36	direct	3051 Mar 15 16:16	4°☾14'28	
minimum elong	3043 Jun 09 07:22	18°II43'38	1°27'38				
max. Earth dist.	3043 Jun 10 00:26	18°II45'14	30.80970 AU	conjunction	3051 Jun 28 00:21	6°☾44'51	-1°-10'-32
retrograde	3043 Sep 24 08:50	21°II18'02		minimum elong	3051 Jun 28 00:21	6°☾44'51	1°10'33
opposition	3043 Dec 12 14:49	19°II52'57	-1°-32'-46	max. Earth dist.	3051 Jun 28 12:18	6°☾45'58	30.84230 AU
min. Earth dist.	3043 Dec 11 23:48	19°II54'01	28.81305 AU	retrograde	3051 Oct 12 13:55	9°☾18'11	
direct	3044 Feb 28 02:49	18°II29'02		opposition	3051 Dec 30 07:33	7°☾53'22	-1°-14'00
				min. Earth dist.	3051 Dec 29 20:50	7°☾54'08	28.84642 AU
conjunction	3044 Jun 10 21:40	20°II59'05	-1°-25'-54	direct	3052 Mar 17 04:04	6°☾29'00	
minimum elong	3044 Jun 10 21:40	20°II59'06	1°25'54				
max. Earth dist.	3044 Jun 11 14:47	21°II00'42	30.81449 AU	conjunction	3052 Jun 29 14:24	8°☾59'26	-1°-7'-53
retrograde	3044 Sep 25 22:25	23°II33'24		minimum elong	3052 Jun 29 14:24	8°☾59'26	1°07'54
min. Earth dist.	3044 Dec 13 11:28	22°II09'25	28.81732 AU	max. Earth dist.	3052 Jun 30 01:07	9°☾00'26	30.84994 AU
opposition	3044 Dec 14 02:11	22°II08'23	-1°-30'-52	retrograde	3052 Oct 14 01:46	11°☾32'38	
direct	3045 Mar 01 16:21	20°II44'26		opposition	3052 Dec 31 18:28	10°☾07'53	-1°-11'-6
				min. Earth dist.	3052 Dec 31 08:58	10°☾08'34	28.85483 AU
conjunction	3045 Jun 13 11:45	23°II14'34	-1°-24'-4	direct	3053 Mar 19 14:01	8°☾43'29	
minimum elong	3045 Jun 13 11:45	23°II14'34	1°24'05				
max. Earth dist.	3045 Jun 14 02:46	23°II15'58	30.81840 AU	conjunction	3053 Jul 02 04:29	11°☾13'59	-1°-5'-7
retrograde	3045 Sep 28 13:13	25°II48'46		minimum elong	3053 Jul 02 04:29	11°☾13'59	1°05'09
opposition	3045 Dec 16 13:31	24°II23'47	-1°-28'-50	max. Earth dist.	3053 Jul 02 15:37	11°☾15'02	30.85907 AU
min. Earth dist.	3045 Dec 15 23:45	24°II24'45	28.82087 AU	retrograde	3053 Oct 16 13:46	13°☾47'04	
direct	3046 Mar 04 04:52	22°II59'47		opposition	3054 Jan 03 05:11	12°☾22'24	-1°-8'-6
				min. Earth dist.	3054 Jan 02 19:43	12°☾23'04	28.86444 AU
conjunction	3046 Jun 16 02:01	25°II29'59	-1°-22'-6	direct	3054 Mar 22 03:19	10°☾58'00	
minimum elong	3046 Jun 16 02:01	25°II29'59	1°22'06				
max. Earth dist.	3046 Jun 16 17:16	25°II31'25	30.82164 AU	conjunction	3054 Jul 04 18:30	13°☾28'35	-1°-2'-16
retrograde	3046 Oct 01 00:45	28°II04'04		minimum elong	3054 Jul 04 18:30	13°☾28'35	1°02'17
min. Earth dist.	3046 Dec 18 11:56	26°II40'00	28.82380 AU	max. Earth dist.	3054 Jul 05 03:49	13°☾29'27	30.86929 AU
opposition	3046 Dec 19 00:46	26°II39'06	-1°-26'-41	retrograde	3054 Oct 19 03:29	16°☾01'32	
direct	3047 Mar 06 17:48	25°II15'03		opposition	3055 Jan 05 15:56	14°☾36'58	-1°-5'00
				min. Earth dist.	3055 Jan 05 07:18	14°☾37'34	28.87502 AU
conjunction	3047 Jun 18 16:02	27°II45'16	-1°-20'-1	direct	3055 Mar 24 14:56	13°☾12'34	
minimum elong	3047 Jun 18 16:02	27°II45'16	1°20'02				
max. Earth dist.	3047 Jun 19 05:36	27°II46'32	30.82463 AU	conjunction	3055 Jul 07 08:45	15°☾43'14	0°-59'-19
	3047 Aug 30 08:26	0°☾		minimum elong	3055 Jul 07 08:45	15°☾43'14	0°59'20
retrograde	3047 Oct 03 14:50	0°☾19'12		max. Earth dist.	3055 Jul 07 18:20	15°☾44'07	30.87997 AU
	3047 Nov 07 03:13	30°RII		retrograde	3055 Oct 21 15:21	18°☾16'03	
opposition	3047 Dec 21 11:54	28°II54'16	-1°-24'-23	opposition	3056 Jan 08 02:44	16°☾51'35	-1°-1'-48
min. Earth dist.	3047 Dec 20 23:18	28°II55'09	28.82675 AU	min. Earth dist.	3056 Jan 07 19:13	16°☾52'07	28.88554 AU
direct	3048 Mar 08 05:58	27°II30'08		direct	3056 Mar 26 03:23	15°☾27'11	
conjunction	3048 Jun 20 06:17	0°☾00'25	-1°-17'-49	conjunction	3056 Jul 08 23:01	17°☾57'55	0°-56'-17
minimum elong	3048 Jun 20 06:17	0°☾00'25	1°17'49	minimum elong	3056 Jul 08 23:01	17°☾57'55	0°56'17
	3048 Jun 20 01:54	0°☾		max. Earth dist.	3056 Jul 09 06:29	17°☾58'36	30.89035 AU
max. Earth dist.	3048 Jun 20 19:49	0°☾01'41	30.82765 AU	retrograde	3056 Oct 23 05:49	20°☾30'35	
retrograde	3048 Oct 05 02:37	2°☾34'11		opposition	3057 Jan 09 13:25	19°☾06'13	0°-58'-30
opposition	3048 Dec 22 22:54	1°☾09'16	-1°-21'-58	min. Earth dist.	3057 Jan 09 06:25	19°☾06'43	28.89557 AU
min. Earth dist.	3048 Dec 22 11:43	1°☾10'03	28.83000 AU	direct	3057 Mar 28 15:48	17°☾41'47	
	3049 Feb 08 18:37	30°RII					
direct	3049 Mar 10 17:33	29°II45'04		conjunction	3057 Jul 11 13:23	20°☾12'36	0°-53'-9

minimum elong	3057 Jul 11 13:23	20° \mathring{U} 12'36	0°53'11	minimum elong	3065 Jul 30 05:16	8° \mathring{O} 05'18	0°25'52
max. Earth dist.	3057 Jul 11 20:31	20° \mathring{U} 13'16	30.89988 AU	max. Earth dist.	3065 Jul 30 04:38	8° \mathring{O} 05'14	30.96863 AU
retrograde	3057 Oct 25 17:39	22° \mathring{U} 45'07		retrograde	3065 Nov 12 15:37	10° \mathring{O} 36'27	
opposition	3058 Jan 12 00:18	21° \mathring{U} 20'48	0°-55'-7	opposition	3066 Jan 29 11:57	9° \mathring{O} 12'37	0°-25'-41
min. Earth dist.	3058 Jan 11 19:02	21° \mathring{U} 21'11	28.90461 AU	min. Earth dist.	3066 Jan 29 11:40	9° \mathring{O} 12'38	28.97468 AU
direct	3058 Mar 31 04:00	19° \mathring{U} 56'22		direct	3066 Apr 18 02:49	7° \mathring{O} 47'50	
conjunction	3058 Jul 14 03:27	22° \mathring{U} 27'12	0°-49'-57	conjunction	3066 Aug 01 18:58	10° \mathring{O} 18'58	0°-22'-13
minimum elong	3058 Jul 14 03:27	22° \mathring{U} 27'12	0°49'58	minimum elong	3066 Aug 01 18:58	10° \mathring{O} 18'58	0°22'14
max. Earth dist.	3058 Jul 14 08:58	22° \mathring{U} 27'42	30.90859 AU	max. Earth dist.	3066 Aug 01 18:38	10° \mathring{O} 18'56	30.98081 AU
retrograde	3058 Oct 28 06:35	24° \mathring{U} 59'33		retrograde	3066 Nov 15 02:57	12° \mathring{O} 49'59	
opposition	3059 Jan 14 10:59	23° \mathring{U} 35'18	0°-51'-39	opposition	3067 Jan 31 22:22	11° \mathring{O} 26'15	0°-21'-46
min. Earth dist.	3059 Jan 14 05:42	23° \mathring{U} 35'41	28.91280 AU	min. Earth dist.	3067 Jan 31 23:36	11° \mathring{O} 26'10	28.98719 AU
direct	3059 Apr 02 16:33	22° \mathring{U} 10'48		direct	3067 Apr 20 15:12	10° \mathring{O} 01'30	
conjunction	3059 Jul 16 17:42	24° \mathring{U} 41'40	0°-46'-41	conjunction	3067 Aug 04 08:46	12° \mathring{O} 32'42	0°-18'-33
minimum elong	3059 Jul 16 17:42	24° \mathring{U} 41'40	0°46'43	minimum elong	3067 Aug 04 08:46	12° \mathring{O} 32'42	0°18'34
max. Earth dist.	3059 Jul 16 22:12	24° \mathring{U} 42'05	30.91639 AU	max. Earth dist.	3067 Aug 04 06:56	12° \mathring{O} 32'32	30.99363 AU
retrograde	3059 Oct 30 17:05	27° \mathring{U} 13'51		retrograde	3067 Nov 03 02:42	15° \mathring{O}	
opposition	3060 Jan 16 21:35	25° \mathring{U} 49'39	0°-48'-7	retrograde	3067 Nov 17 15:48	15° \mathring{O} 03'34	
min. Earth dist.	3060 Jan 16 18:16	25° \mathring{U} 49'53	28.92035 AU		3067 Dec 02 03:37	15° \mathring{R} \mathring{O}	
direct	3060 Apr 04 03:32	24° \mathring{U} 25'05		opposition	3068 Feb 03 08:30	13° \mathring{O} 39'57	0°-17'-50
conjunction	3060 Jul 18 07:54	26° \mathring{U} 55'59	0°-43'-21	min. Earth dist.	3068 Feb 03 09:40	13° \mathring{O} 39'52	28.99998 AU
minimum elong	3060 Jul 18 07:54	26° \mathring{U} 55'59	0°43'22	direct	3068 Apr 22 03:41	12° \mathring{O} 15'12	
max. Earth dist.	3060 Jul 18 11:38	26° \mathring{U} 56'20	30.92386 AU	conjunction	3068 Aug 05 22:40	14° \mathring{O} 46'28	0°-14'-51
retrograde	3060 Nov 01 05:18	29° \mathring{U} 27'59		minimum elong	3068 Aug 05 22:40	14° \mathring{O} 46'28	0°14'52
opposition	3061 Jan 18 08:05	28° \mathring{O} 03'49	0°-44'-31	behind sun begin	3068 Aug 05 20:25	14° \mathring{O} 46'16	
min. Earth dist.	3061 Jan 18 04:43	28° \mathring{O} 04'04	28.92763 AU	behind sun end	3068 Aug 06 00:56	14° \mathring{O} 46'40	
direct	3061 Apr 06 15:36	26° \mathring{U} 39'12		max. Earth dist.	3068 Aug 05 19:59	14° \mathring{O} 46'14	31.00618 AU
conjunction	3061 Jul 20 21:47	29° \mathring{U} 10'08	0°-39'-57		3068 Aug 12 00:38	15° \mathring{O}	
minimum elong	3061 Jul 20 21:48	29° \mathring{U} 10'08	0°39'58	retrograde	3068 Nov 19 02:58	17° \mathring{O} 17'12	
max. Earth dist.	3061 Jul 21 00:07	29° \mathring{U} 10'20	30.93117 AU	opposition	3069 Feb 04 18:59	15° \mathring{O} 53'40	0°-13'-52
	3061 Aug 12 15:11	0° \mathring{O}		min. Earth dist.	3069 Feb 04 22:05	15° \mathring{O} 53'27	29.01228 AU
retrograde	3061 Nov 03 15:49	1° \mathring{O} 41'57		direct	3069 Mar 11 02:41	15° \mathring{R} \mathring{O}	
opposition	3062 Jan 20 18:36	0° \mathring{O} 17'50	0°-40'-51		3069 Apr 24 14:35	14° \mathring{O} 28'56	
min. Earth dist.	3062 Jan 20 16:42	0° \mathring{O} 17'58	28.93518 AU		3069 Jun 07 08:24	15° \mathring{O}	
	3062 Jan 31 08:04	30° \mathring{R} \mathring{U}		conjunction	3069 Aug 08 12:22	17° \mathring{O} 00'14	0°-11'-9
direct	3062 Apr 09 01:41	28° \mathring{U} 53'09		minimum elong	3069 Aug 08 12:22	17° \mathring{O} 00'14	0°11'10
	3062 Jun 13 14:34	0° \mathring{O}		behind sun begin	3069 Aug 08 07:33	16° \mathring{O} 59'49	
conjunction	3062 Jul 23 11:47	1° \mathring{O} 24'06	0°-36'-30	behind sun end	3069 Aug 08 17:11	17° \mathring{O} 00'40	
minimum elong	3062 Jul 23 11:47	1° \mathring{O} 24'06	0°36'30	max. Earth dist.	3069 Aug 08 08:42	16° \mathring{O} 59'55	31.01807 AU
max. Earth dist.	3062 Jul 23 14:14	1° \mathring{O} 24'19	30.93904 AU	retrograde	3069 Nov 21 15:30	19° \mathring{O} 30'48	
retrograde	3062 Nov 06 02:31	3° \mathring{O} 55'44		opposition	3070 Feb 07 05:18	18° \mathring{O} 07'22	0°-9'-54
opposition	3063 Jan 23 04:54	2° \mathring{O} 31'40	0°-37'-8	min. Earth dist.	3070 Feb 07 08:30	18° \mathring{O} 07'08	29.02358 AU
min. Earth dist.	3063 Jan 23 03:11	2° \mathring{O} 31'47	28.94334 AU	direct	3070 Apr 27 02:46	16° \mathring{O} 42'36	
direct	3063 Apr 11 14:53	1° \mathring{O} 06'56		conjunction	3070 Aug 11 02:06	19° \mathring{O} 13'56	0°-7'-26
conjunction	3063 Jul 26 01:35	3° \mathring{O} 37'55	0°-32'-59	minimum elong	3070 Aug 11 02:06	19° \mathring{O} 13'56	0°07'27
minimum elong	3063 Jul 26 01:35	3° \mathring{O} 37'55	0°33'00	behind sun begin	3070 Aug 10 20:06	19° \mathring{O} 13'24	
max. Earth dist.	3063 Jul 26 02:14	3° \mathring{O} 37'59	30.94771 AU	behind sun end	3070 Aug 11 08:06	19° \mathring{O} 14'28	
retrograde	3063 Nov 08 14:52	6° \mathring{O} 09'23		max. Earth dist.	3070 Aug 10 20:47	19° \mathring{O} 13'28	31.02879 AU
opposition	3064 Jan 25 15:18	4° \mathring{O} 45'23	0°-33'-22	retrograde	3070 Nov 24 01:12	21° \mathring{O} 44'20	
min. Earth dist.	3064 Jan 25 14:15	4° \mathring{O} 45'27	28.95260 AU	opposition	3071 Feb 09 15:38	20° \mathring{O} 20'57	0°-5'-54
direct	3064 Apr 13 02:16	3° \mathring{O} 20'36		min. Earth dist.	3071 Feb 09 20:36	20° \mathring{O} 20'36	29.03385 AU
conjunction	3064 Jul 27 15:32	5° \mathring{O} 51'38	0°-29'-26	direct	3071 Apr 29 13:07	18° \mathring{O} 56'08	
minimum elong	3064 Jul 27 15:32	5° \mathring{O} 51'38	0°29'27	conjunction	3071 Aug 13 15:53	21° \mathring{O} 27'28	0°-3'-43
max. Earth dist.	3064 Jul 27 16:36	5° \mathring{O} 51'44	30.95751 AU	minimum elong	3071 Aug 13 15:53	21° \mathring{O} 27'28	0°03'44
retrograde	3064 Nov 10 01:42	8° \mathring{O} 22'56		behind sun begin	3071 Aug 13 09:22	21° \mathring{O} 26'53	
opposition	3065 Jan 27 01:37	6° \mathring{O} 59'00	0°-29'-33	behind sun end	3071 Aug 13 22:25	21° \mathring{O} 28'03	
min. Earth dist.	3065 Jan 27 01:21	6° \mathring{O} 59'02	28.96296 AU	max. Earth dist.	3071 Aug 13 10:13	21° \mathring{O} 26'58	31.03852 AU
direct	3065 Apr 15 14:13	5° \mathring{O} 34'13		retrograde	3071 Nov 26 10:59	23° \mathring{O} 57'40	
conjunction	3065 Jul 30 05:16	8° \mathring{O} 05'18	0°-25'-51	opposition	3072 Feb 12 01:56	22° \mathring{O} 34'20	0°-1'-55
				min. Earth dist.	3072 Feb 12 07:26	22° \mathring{O} 33'57	29.04297 AU
				direct	3072 May 01 02:08	21° \mathring{O} 09'29	

asc. node	3072 Aug 08 00:32	23°02'48"		opposition	3079 Feb 27 00:44	8°01'58"	0°25'36"
				min. Earth dist.	3079 Feb 27 10:06	8°01'18"	29.11069 AU
conjunction	3072 Aug 15 05:25	23°04'48"	0°00'05"	direct	3079 May 17 14:26	6°03'52"	
minimum elong	3072 Aug 15 05:24	23°04'48"	0°00'05"				
behind sun begin	3072 Aug 14 23:11	23°04'15"		conjunction	3079 Sep 01 01:05	9°08'12"	0°25'48"
behind sun end	3072 Aug 15 11:37	23°04'21"		minimum elong	3079 Sep 01 01:04	9°08'12"	0°25'48"
max. Earth dist.	3072 Aug 14 21:37	23°04'06"	31.04725 AU	max. Earth dist.	3079 Aug 31 13:07	9°07'06"	31.11707 AU
retrograde	3072 Nov 27 22:13	26°01'49"		retrograde	3079 Dec 14 02:15	11°37'04"	
opposition	3073 Feb 13 12:08	24°04'30"	0°02'03"	opposition	3080 Feb 29 10:54	10°14'09"	0°29'26"
min. Earth dist.	3073 Feb 13 18:34	24°04'03"	29.05146 AU	min. Earth dist.	3080 Feb 29 21:35	10°13'24"	29.12375 AU
direct	3073 May 03 12:48	23°02'34"		direct	3080 May 19 00:28	8°49'06"	
conjunction	3073 Aug 17 18:56	25°05'53"	0°03'52"	conjunction	3080 Sep 02 13:59	11°20'28"	0°29'21"
minimum elong	3073 Aug 17 18:57	25°05'53"	0°03'52"	minimum elong	3080 Sep 02 13:58	11°20'28"	0°29'21"
behind sun begin	3073 Aug 17 12:26	25°05'19"		max. Earth dist.	3080 Sep 02 02:07	11°19'22"	31.13011 AU
behind sun end	3073 Aug 18 01:28	25°05'42"		retrograde	3080 Dec 15 11:50	13°49'12"	
max. Earth dist.	3073 Aug 17 11:20	25°05'12"	31.05550 AU	opposition	3081 Mar 02 21:03	12°26'24"	0°33'12"
retrograde	3073 Nov 30 07:55	28°02'34"		min. Earth dist.	3081 Mar 03 08:07	12°25'37"	29.13660 AU
opposition	3074 Feb 15 22:21	27°00'25"	0°06'02"	direct	3081 May 21 12:34	11°01'23"	
min. Earth dist.	3074 Feb 16 05:50	26°05'53"	29.05960 AU				
direct	3074 May 06 00:55	25°03'26"		conjunction	3081 Sep 05 02:45	13°32'48"	0°32'51"
				minimum elong	3081 Sep 05 02:45	13°32'48"	0°32'52"
conjunction	3074 Aug 20 08:04	28°06'42"	0°07'34"	max. Earth dist.	3081 Sep 04 13:01	13°31'32"	31.14268 AU
minimum elong	3074 Aug 20 08:04	28°06'42"	0°07'35"	retrograde	3081 Dec 17 23:07	16°01'26"	
behind sun begin	3074 Aug 20 02:06	28°06'11"		opposition	3082 Mar 05 07:14	14°38'43"	0°36'56"
behind sun end	3074 Aug 20 14:02	28°07'14"		min. Earth dist.	3082 Mar 05 19:03	14°37'53"	29.14892 AU
max. Earth dist.	3074 Aug 19 22:38	28°05'51"	31.06373 AU	direct	3082 May 23 22:08	13°13'43"	
	3074 Oct 16 19:13	0°00'00"					
retrograde	3074 Dec 02 20:04	0°36'20"		conjunction	3082 Sep 07 15:35	15°45'09"	0°36'19"
	3075 Jan 19 20:02	30°08'00"		minimum elong	3082 Sep 07 15:35	15°45'09"	0°36'19"
opposition	3075 Feb 18 08:27	29°01'34"	0°10'00"	max. Earth dist.	3082 Sep 07 02:00	15°43'53"	31.15440 AU
min. Earth dist.	3075 Feb 18 16:01	29°01'32"	29.06799 AU	retrograde	3082 Dec 20 08:27	18°13'40"	
direct	3075 May 08 13:47	27°04'48"		opposition	3083 Mar 07 17:32	16°51'01"	0°40'36"
	3075 Aug 14 04:41	0°00'00"		min. Earth dist.	3083 Mar 08 06:34	16°50'07"	29.16003 AU
				direct	3083 May 26 09:46	15°26'02"	
conjunction	3075 Aug 22 21:22	0°19'17"	0°11'15"				
minimum elong	3075 Aug 22 21:22	0°19'17"	0°11'15"	conjunction	3083 Sep 10 04:17	17°57'28"	0°39'43"
behind sun begin	3075 Aug 22 16:35	0°18'52"		minimum elong	3083 Sep 10 04:17	17°57'28"	0°39'43"
behind sun end	3075 Aug 23 02:09	0°19'42"		max. Earth dist.	3083 Sep 09 12:38	17°56'01"	31.16493 AU
max. Earth dist.	3075 Aug 22 12:14	0°18'27"	31.07228 AU	retrograde	3083 Dec 22 20:13	20°25'51"	
retrograde	3075 Dec 05 05:57	2°48'43"		opposition	3084 Mar 09 03:40	19°03'15"	0°44'12"
opposition	3076 Feb 20 18:33	1°25'28"	0°13'56"	min. Earth dist.	3084 Mar 09 16:54	19°02'20"	29.17004 AU
min. Earth dist.	3076 Feb 21 03:33	1°24'50"	29.07694 AU	direct	3084 May 27 22:20	17°38'15"	
direct	3076 May 10 02:16	0°00'22"					
				conjunction	3084 Sep 11 17:02	20°09'41"	0°43'04"
conjunction	3076 Aug 24 10:25	2°31'38"	0°14'56"	minimum elong	3084 Sep 11 17:02	20°09'41"	0°43'03"
minimum elong	3076 Aug 24 10:24	2°31'38"	0°14'55"	max. Earth dist.	3084 Sep 11 01:30	20°08'15"	31.17430 AU
behind sun begin	3076 Aug 24 08:11	2°31'27"		retrograde	3084 Dec 24 05:45	22°37'56"	
behind sun end	3076 Aug 24 12:37	2°31'50"		opposition	3085 Mar 11 14:02	21°15'22"	0°47'44"
max. Earth dist.	3076 Aug 24 00:03	2°30'42"	31.08177 AU	min. Earth dist.	3085 Mar 12 04:53	21°14'20"	29.17896 AU
retrograde	3076 Dec 06 18:03	5°00'54"		direct	3085 May 30 10:28	19°50'21"	
opposition	3077 Feb 22 04:36	3°37'42"	0°17'51"				
min. Earth dist.	3077 Feb 22 13:00	3°37'07"	29.08699 AU	conjunction	3085 Sep 14 05:20	22°21'44"	0°46'20"
direct	3077 May 12 14:59	2°12'35"		minimum elong	3085 Sep 14 05:20	22°21'44"	0°46'20"
				max. Earth dist.	3085 Sep 13 12:25	22°20'11"	31.18285 AU
conjunction	3077 Aug 26 23:15	4°43'51"	0°18'35"	retrograde	3085 Dec 26 17:29	24°49'50"	
minimum elong	3077 Aug 26 23:15	4°43'51"	0°18'34"	opposition	3086 Mar 14 00:09	23°27'18"	0°51'12"
max. Earth dist.	3077 Aug 26 12:46	4°42'54"	31.09235 AU	min. Earth dist.	3086 Mar 14 14:38	23°26'18"	29.18718 AU
retrograde	3077 Dec 09 04:39	7°12'58"		direct	3086 Jun 01 23:20	22°02'15"	
opposition	3078 Feb 24 14:50	5°49'50"	0°21'45"				
min. Earth dist.	3078 Feb 25 00:31	5°49'09"	29.09830 AU	conjunction	3086 Sep 16 17:44	24°33'37"	0°49'32"
direct	3078 May 15 02:11	4°24'44"		minimum elong	3086 Sep 16 17:44	24°33'37"	0°49'32"
				max. Earth dist.	3086 Sep 16 00:30	24°32'01"	31.19075 AU
conjunction	3078 Aug 29 12:10	6°56'01"	0°22'12"	retrograde	3086 Dec 29 04:03	27°01'33"	
minimum elong	3078 Aug 29 12:10	6°56'01"	0°22'12"	opposition	3087 Mar 16 10:17	25°39'02"	0°54'35"
max. Earth dist.	3078 Aug 29 01:14	6°55'01"	31.10432 AU	min. Earth dist.	3087 Mar 17 02:19	25°37'55"	29.19507 AU
retrograde	3078 Dec 11 16:27	9°24'59"		direct	3087 Jun 04 11:33	24°13'57"	

conjunction	3087 Sep 19 05:59	26° 17 45'16	0°52'40	conjunction	3095 Oct 07 04:24	14° 14 14'54	1°14'34
minimum elong	3087 Sep 19 05:59	26° 17 45'16	0°52'40	minimum elong	3095 Oct 07 04:24	14° 14 14'54	1°14'34
max. Earth dist.	3087 Sep 18 12:16	26° 17 43'37	31.19866 AU	retrograde	3096 Jan 17 22:50	16° 14 41'56	
retrograde	3087 Dec 31 15:12	29° 17 13'02		opposition	3096 Apr 04 07:06	15° 14 19'53	1°20'51
opposition	3088 Mar 17 20:25	27° 17 50'32	0°57'53	min. Earth dist.	3096 Apr 05 02:29	15° 14 18'32	29.28553 AU
min. Earth dist.	3088 Mar 18 12:03	27° 17 49'27	29.20306 AU	direct	3096 Jun 23 19:46	13° 14 54'58	
direct	3088 Jun 06 01:15	26° 17 25'25					
conjunction	3088 Sep 20 17:58	28° 17 56'41	0°55'43	conjunction	3096 Oct 08 15:53	16° 14 26'05	1°16'51
minimum elong	3088 Sep 20 17:58	28° 17 56'41	0°55'43	minimum elong	3096 Oct 08 15:53	16° 14 26'05	1°16'50
max. Earth dist.	3088 Sep 19 23:33	28° 17 54'59	31.20684 AU	max. Earth dist.	3096 Oct 07 18:48	16° 14 24'08	31.28857 AU
	3088 Oct 20 02:39	0° 14		retrograde	3097 Jan 19 09:46	18° 14 53'01	
retrograde	3089 Jan 02 00:14	1° 14 24'20		opposition	3097 Apr 06 17:40	17° 14 31'00	1°23'14
opposition	3089 Mar 20 06:40	0° 14 01'51	1°01'06	min. Earth dist.	3097 Apr 07 12:47	17° 14 29'41	29.29271 AU
min. Earth dist.	3089 Mar 20 23:08	0° 14 00'42	29.21180 AU	direct	3097 Jun 26 09:35	16° 14 06'06	
	3089 Mar 21 09:10	30° 14 R 17		max. Earth dist.	3097 Oct 10 05:19	18° 14 35'08	31.29504 AU
direct	3089 Jun 08 11:52	28° 17 36'43		conjunction	3097 Oct 11 03:21	18° 14 37'11	1°19'01
	3089 Aug 22 13:12	0° 14		minimum elong	3097 Oct 11 03:21	18° 14 37'11	1°19'02
conjunction	3089 Sep 23 05:57	1° 14 07'56	0°58'41	retrograde	3098 Jan 21 19:26	21° 14 04'02	
minimum elong	3089 Sep 23 05:57	1° 14 07'56	0°58'42	opposition	3098 Apr 09 04:12	19° 14 42'02	1°25'30
max. Earth dist.	3089 Sep 22 12:08	1° 14 06'18	31.21604 AU	min. Earth dist.	3098 Apr 10 00:22	19° 14 40'38	29.29872 AU
retrograde	3090 Jan 04 09:12	3° 14 35'26		direct	3098 Jun 28 20:22	18° 14 17'08	
opposition	3090 Mar 22 16:50	2° 14 13'00	1°04'13	conjunction	3098 Oct 13 14:46	20° 14 48'09	1°21'05
min. Earth dist.	3090 Mar 23 09:11	2° 14 11'52	29.22152 AU	minimum elong	3098 Oct 13 14:46	20° 14 48'09	1°21'05
direct	3090 Jun 11 00:15	0° 14 47'53		max. Earth dist.	3098 Oct 12 17:07	20° 14 46'09	31.30045 AU
conjunction	3090 Sep 25 17:44	3° 14 19'05	1°01'34	retrograde	3099 Jan 24 04:21	23° 14 14'54	
minimum elong	3090 Sep 25 17:44	3° 14 19'05	1°01'34	opposition	3099 Apr 11 14:47	21° 14 52'55	1°27'38
max. Earth dist.	3090 Sep 24 22:43	3° 14 17'19	31.22633 AU	min. Earth dist.	3099 Apr 12 11:09	21° 14 51'31	29.30357 AU
retrograde	3091 Jan 06 19:56	5° 14 46'28		direct	3099 Jul 01 09:33	20° 14 28'01	
opposition	3091 Mar 25 03:02	4° 14 24'06	1°07'15	max. Earth dist.	3099 Oct 15 02:59	22° 14 56'51	31.30495 AU
min. Earth dist.	3091 Mar 25 19:26	4° 14 22'57	29.23242 AU	conjunction	3099 Oct 16 01:55	22° 14 58'59	1°23'01
direct	3091 Jun 13 09:50	2° 14 58'59		minimum elong	3099 Oct 16 01:54	22° 14 58'59	1°23'02
max. Earth dist.	3091 Sep 27 11:27	5° 14 28'29	31.23758 AU	retrograde	3100 Jan 26 14:50	25° 14 25'39	
conjunction	3091 Sep 28 05:39	5° 14 30'10	1°04'22	opposition	3100 Apr 14 01:19	24° 14 03'40	1°29'39
minimum elong	3091 Sep 28 05:39	5° 14 30'10	1°04'22	min. Earth dist.	3100 Apr 14 21:41	24° 14 02'15	29.30797 AU
retrograde	3092 Jan 09 04:12	7° 14 57'29		direct	3100 Jul 03 19:51	22° 14 38'44	
opposition	3092 Mar 26 13:18	6° 14 35'11	1°10'11	conjunction	3100 Oct 18 13:02	25° 14 09'39	1°24'50
min. Earth dist.	3092 Mar 27 06:28	6° 14 33'59	29.24392 AU	minimum elong	3100 Oct 18 13:02	25° 14 09'39	1°24'50
direct	3092 Jun 14 21:24	5° 14 10'08		max. Earth dist.	3100 Oct 17 15:07	25° 14 07'36	31.30922 AU
conjunction	3092 Sep 29 17:20	7° 14 41'18	1°07'04				
minimum elong	3092 Sep 29 17:20	7° 14 41'18	1°07'04				
max. Earth dist.	3092 Sep 28 21:45	7° 14 39'29	31.24928 AU				
retrograde	3093 Jan 10 15:12	10° 14 08'32					
opposition	3093 Mar 28 23:38	8° 14 46'19	1°13'01				
min. Earth dist.	3093 Mar 29 16:28	8° 14 45'09	29.25567 AU				
direct	3093 Jun 17 08:23	7° 14 21'18					
max. Earth dist.	3093 Oct 01 09:59	9° 14 50'43	31.26071 AU				
conjunction	3093 Oct 02 04:59	9° 14 52'29	1°09'40				
minimum elong	3093 Oct 02 04:59	9° 14 52'29	1°09'40				
retrograde	3094 Jan 13 00:31	12° 14 19'39					
opposition	3094 Mar 31 10:08	10° 14 57'30	1°15'45				
min. Earth dist.	3094 Apr 01 04:26	10° 14 56'13	29.26679 AU				
direct	3094 Jun 19 19:14	9° 14 32'32					
conjunction	3094 Oct 04 16:39	12° 14 03'41	1°12'10				
minimum elong	3094 Oct 04 16:38	12° 14 03'41	1°12'09				
max. Earth dist.	3094 Oct 03 20:25	12° 14 01'49	31.27135 AU				
retrograde	3095 Jan 15 12:06	14° 14 30'47					
opposition	3095 Apr 02 20:26	13° 14 08'42	1°18'21				
min. Earth dist.	3095 Apr 03 14:19	13° 14 07'27	29.27684 AU				
direct	3095 Jun 22 07:43	11° 14 43'45					
max. Earth dist.	3095 Oct 06 07:49	14° 14 13'00	31.28062 AU				

retrograde	3100 Jan 26 14:50	25° 2 25'39		minimum elong	3107 Nov 03 15:54	10° 1 23'21	1°34'03
opposition	3100 Apr 14 01:19	24° 2 03'40	1°29'39	max. Earth dist.	3107 Nov 02 18:16	10° 1 21'20	31.35019 AU
min. Earth dist.	3100 Apr 14 21:41	24° 2 02'15	29.30797 AU	retrograde	3108 Feb 13 22:17	12° 1 49'45	
direct	3100 Jul 03 19:51	22° 2 38'44		opposition	3108 May 01 15:33	11° 1 28'01	1°40'52
				min. Earth dist.	3108 May 02 12:23	11° 1 26'35	29.35323 AU
conjunction	3100 Oct 18 13:02	25° 2 09'39	1°24'50	direct	3108 Jul 21 17:48	10° 1 03'22	
minimum elong	3100 Oct 18 13:02	25° 2 09'39	1°24'50	max. Earth dist.	3108 Nov 04 03:32	12° 1 31'52	31.35385 AU
max. Earth dist.	3100 Oct 17 15:07	25° 2 07'36	31.30922 AU				
retrograde	3101 Jan 28 22:29	27° 2 36'14		conjunction	3108 Nov 05 02:22	12° 1 34'00	1°34'50
opposition	3101 Apr 16 12:01	26° 2 14'15	1°31'32	minimum elong	3108 Nov 05 02:22	12° 1 34'00	1°34'49
min. Earth dist.	3101 Apr 17 08:56	26° 2 12'49	29.31235 AU		3109 Feb 10 13:00	15° 1	
direct	3101 Jul 06 07:54	24° 2 49'19		retrograde	3109 Feb 15 09:20	15° 1 00'24	
					3109 Feb 20 04:10	15° 1	
conjunction	3101 Oct 20 23:44	27° 2 20'10	1°26'32	opposition	3109 May 04 02:37	13° 1 38'39	1°41'38
minimum elong	3101 Oct 20 23:44	27° 2 20'10	1°26'33	min. Earth dist.	3109 May 04 23:17	13° 1 37'14	29.35628 AU
max. Earth dist.	3101 Oct 20 00:53	27° 2 18'02	31.31385 AU	direct	3109 Jul 24 04:49	12° 1 14'01	
retrograde	3102 Jan 31 08:36	29° 2 46'41					
opposition	3102 Apr 18 22:35	28° 2 24'43	1°33'17	conjunction	3109 Nov 07 12:50	14° 1 44'35	1°35'29
min. Earth dist.	3102 Apr 19 18:38	28° 2 23'20	29.31737 AU	minimum elong	3109 Nov 07 12:49	14° 1 44'35	1°35'29
direct	3102 Jul 08 18:37	26° 2 59'48		max. Earth dist.	3109 Nov 06 14:53	14° 1 42'32	31.35608 AU
					3109 Nov 14 10:33	15° 1	
conjunction	3102 Oct 23 10:40	29° 2 30'36	1°28'07	retrograde	3110 Feb 17 16:55	17° 1 10'57	
minimum elong	3102 Oct 23 10:40	29° 2 30'36	1°28'06	opposition	3110 May 06 13:49	15° 1 49'11	1°42'16
max. Earth dist.	3102 Oct 22 12:51	29° 2 28'34	31.31918 AU	min. Earth dist.	3110 May 07 11:15	15° 1 47'43	29.35771 AU
	3102 Nov 05 16:53	0° 1			3110 Jun 07 13:51	15° 1	
retrograde	3103 Feb 02 17:20	1° 1 57'05		direct	3110 Jul 26 17:15	14° 1 24'34	
opposition	3103 Apr 21 09:14	0° 1 35'08	1°34'53		3110 Sep 12 06:47	15° 1	
min. Earth dist.	3103 Apr 22 06:09	0° 1 33'42	29.32316 AU				
	3103 May 13 07:27	30° 1		conjunction	3110 Nov 09 23:09	16° 1 55'02	1°36'00
direct	3103 Jul 11 04:31	29° 2 10'15		minimum elong	3110 Nov 09 23:09	16° 1 55'02	1°35'59
	3103 Sep 06 04:25	0° 1		max. Earth dist.	3110 Nov 09 00:04	16° 1 52'53	31.35689 AU
				retrograde	3111 Feb 20 02:43	19° 1 21'22	
conjunction	3103 Oct 25 21:24	1° 1 41'01	1°29'34	opposition	3111 May 09 00:47	17° 1 59'35	1°42'45
minimum elong	3103 Oct 25 21:24	1° 1 41'01	1°29'34	min. Earth dist.	3111 May 09 21:31	17° 1 58'10	29.35790 AU
max. Earth dist.	3103 Oct 24 23:10	1° 1 38'57	31.32545 AU	direct	3111 Jul 29 04:13	16° 1 34'57	
retrograde	3104 Feb 05 04:29	4° 1 07'29		max. Earth dist.	3111 Nov 11 11:19	19° 1 03'16	31.35650 AU
opposition	3104 Apr 22 19:55	2° 1 45'35	1°36'22				
min. Earth dist.	3104 Apr 23 15:40	2° 1 44'13	29.32972 AU	conjunction	3111 Nov 12 09:30	19° 1 05'20	1°36'23
direct	3104 Jul 12 16:36	1° 1 20'44		minimum elong	3111 Nov 12 09:30	19° 1 05'20	1°36'23
max. Earth dist.	3104 Oct 26 10:09	3° 1 49'28	31.33217 AU	retrograde	3112 Feb 22 11:22	21° 1 31'38	
				opposition	3112 May 10 12:05	20° 1 09'48	1°43'05
conjunction	3104 Oct 27 08:01	3° 1 51'29	1°30'53	min. Earth dist.	3112 May 11 09:46	20° 1 08'19	29.35714 AU
minimum elong	3104 Oct 27 08:01	3° 1 51'29	1°30'53	direct	3112 Jul 30 14:40	18° 1 45'09	
retrograde	3105 Feb 06 15:25	6° 1 17'57					
opposition	3105 Apr 25 06:48	4° 1 56'05	1°37'42	conjunction	3112 Nov 13 19:25	21° 1 15'26	1°36'37
min. Earth dist.	3105 Apr 26 03:27	4° 1 54'40	29.33661 AU	minimum elong	3112 Nov 13 19:25	21° 1 15'26	1°36'37
direct	3105 Jul 15 04:12	3° 1 31'19		max. Earth dist.	3112 Nov 12 21:05	21° 1 13'21	31.35559 AU
				retrograde	3113 Feb 23 21:36	23° 1 41'42	
conjunction	3105 Oct 29 18:39	6° 1 02'03	1°32'04	opposition	3113 May 12 23:13	22° 1 19'50	1°43'17
minimum elong	3105 Oct 29 18:39	6° 1 02'03	1°32'05	min. Earth dist.	3113 May 13 19:34	22° 1 18'27	29.35610 AU
max. Earth dist.	3105 Oct 28 20:57	6° 1 00'02	31.33900 AU	direct	3113 Aug 02 03:04	20° 1 55'10	
retrograde	3106 Feb 09 02:18	8° 1 28'30		max. Earth dist.	3113 Nov 15 07:35	23° 1 23'19	31.35456 AU
opposition	3106 Apr 27 17:29	7° 1 06'41	1°38'54				
min. Earth dist.	3106 Apr 28 13:34	7° 1 05'18	29.34315 AU	conjunction	3113 Nov 16 05:25	23° 1 25'21	1°36'44
direct	3106 Jul 17 17:21	5° 1 41'58		minimum elong	3113 Nov 16 05:25	23° 1 25'21	1°36'45
max. Earth dist.	3106 Oct 31 06:56	8° 1 10'36	31.34512 AU	retrograde	3114 Feb 26 07:50	25° 1 51'37	
				opposition	3114 May 15 10:22	24° 1 29'42	1°43'19
conjunction	3106 Nov 01 05:17	8° 1 12'41	1°33'07	min. Earth dist.	3114 May 16 07:14	24° 1 28'17	29.35541 AU
minimum elong	3106 Nov 01 05:17	8° 1 12'41	1°33'07	direct	3114 Aug 04 13:59	23° 1 05'02	
retrograde	3107 Feb 11 12:38	10° 1 39'07					
opposition	3107 Apr 30 04:29	9° 1 17'20	1°39'57	conjunction	3114 Nov 18 15:21	25° 1 35'09	1°36'43
min. Earth dist.	3107 May 01 01:14	9° 1 15'55	29.34888 AU	minimum elong	3114 Nov 18 15:21	25° 1 35'09	1°36'42
direct	3107 Jul 20 03:57	7° 1 52'40		max. Earth dist.	3114 Nov 17 18:16	25° 1 33'11	31.35426 AU
				retrograde	3115 Feb 28 18:06	28° 1 01'25	
conjunction	3107 Nov 03 15:54	10° 1 23'21	1°34'02	opposition	3115 May 17 21:36	26° 1 39'29	1°43'14

min. Earth dist.	3115 May 18 17:13	26° ℓ 38'09	29.35544 AU	retrograde	3123 Mar 18 03:33	15° ♊ 23'08	
direct	3115 Aug 07 02:45	25° ℓ 14'51		opposition	3123 Jun 04 18:05	14° ♊ 01'16	1°37'11
max. Earth dist.	3115 Nov 20 03:59	27° ℓ 42'57	31.35476 AU	min. Earth dist.	3123 Jun 05 11:54	14° ♊ 00'03	29.35606 AU
				direct	3123 Aug 24 20:16	12° ♊ 37'03	
conjunction	3115 Nov 21 01:05	27° ℓ 44'55	1°36'33				
minimum elong	3115 Nov 21 01:05	27° ℓ 44'55	1°36'33	conjunction	3123 Dec 08 06:41	15° ♊ 06'48	1°30'20
	3116 Feb 05 11:09	0° ♊		minimum elong	3123 Dec 08 06:41	15° ♊ 06'48	1°30'21
retrograde	3116 Mar 02 04:44	0° ♊ 11'14		max. Earth dist.	3123 Dec 07 12:59	15° ♊ 05'08	31.35299 AU
	3116 Mar 28 08:03	30° ♋		retrograde	3124 Mar 19 13:51	17° ♊ 33'36	
opposition	3116 May 19 08:57	28° ℓ 49'18	1°42'59	opposition	3124 Jun 06 05:55	16° ♊ 11'41	1°35'47
min. Earth dist.	3116 May 20 04:25	28° ℓ 47'58	29.35649 AU	min. Earth dist.	3124 Jun 06 22:43	16° ♊ 10'33	29.35141 AU
direct	3116 Aug 08 13:12	27° ℓ 24'42		direct	3124 Aug 26 08:30	14° ♊ 47'29	
conjunction	3116 Nov 22 10:55	29° ℓ 54'45	1°36'15	conjunction	3124 Dec 09 16:08	17° ♊ 17'08	1°28'59
minimum elong	3116 Nov 22 10:55	29° ℓ 54'45	1°36'15	minimum elong	3124 Dec 09 16:08	17° ♊ 17'08	1°28'59
max. Earth dist.	3116 Nov 21 15:20	29° ℓ 52'55	31.35622 AU	max. Earth dist.	3124 Dec 08 22:13	17° ♊ 15'27	31.34799 AU
	3116 Nov 24 19:10	0° ♊		retrograde	3125 Mar 22 01:03	19° ♊ 43'59	
retrograde	3117 Mar 04 14:31	2° ♊ 21'06		opposition	3125 Jun 08 17:45	18° ♊ 22'00	1°34'16
opposition	3117 May 21 20:17	0° ♊ 59'12	1°42'35	min. Earth dist.	3125 Jun 09 10:29	18° ♊ 20'52	29.34623 AU
min. Earth dist.	3117 May 22 15:14	0° ♊ 57'54	29.35814 AU	direct	3125 Aug 28 19:27	16° ♊ 57'46	
	3117 Jun 30 23:54	30° ♋		max. Earth dist.	3125 Dec 11 09:16	19° ♊ 25'49	31.34269 AU
direct	3117 Aug 11 02:33	29° ℓ 34'41					
	3117 Sep 20 00:42	0° ♊		conjunction	3125 Dec 12 01:33	19° ♊ 27'20	1°27'29
				minimum elong	3125 Dec 12 01:33	19° ♊ 27'20	1°27'30
conjunction	3117 Nov 24 20:30	2° ♊ 04'42	1°35'48	retrograde	3126 Mar 24 11:20	21° ♊ 54'13	
minimum elong	3117 Nov 24 20:30	2° ♊ 04'42	1°35'49	opposition	3126 Jun 11 05:38	20° ♊ 32'10	1°32'37
max. Earth dist.	3117 Nov 24 00:22	2° ♊ 02'49	31.35809 AU	min. Earth dist.	3126 Jun 11 21:42	20° ♊ 31'05	29.34086 AU
retrograde	3118 Mar 07 02:09	4° ♊ 31'07		direct	3126 Aug 31 09:26	19° ♊ 07'57	
opposition	3118 May 24 07:39	3° ♊ 09'15	1°42'03				
min. Earth dist.	3118 May 25 01:53	3° ♊ 08'00	29.36004 AU	conjunction	3126 Dec 14 10:45	21° ♊ 37'25	1°25'53
direct	3118 Aug 13 13:19	1° ♊ 44'48		minimum elong	3126 Dec 14 10:45	21° ♊ 37'25	1°25'52
max. Earth dist.	3118 Nov 26 11:34	4° ♊ 13'03	31.35979 AU	max. Earth dist.	3126 Dec 13 18:12	21° ♊ 35'52	31.33759 AU
				retrograde	3127 Mar 26 22:51	24° ♊ 04'22	
conjunction	3118 Nov 27 06:19	4° ♊ 14'48	1°35'14	opposition	3127 Jun 13 17:31	22° ♊ 42'14	1°30'50
minimum elong	3118 Nov 27 06:19	4° ♊ 14'48	1°35'13	min. Earth dist.	3127 Jun 14 08:20	22° ♊ 41'14	29.33614 AU
retrograde	3119 Mar 09 10:17	6° ♊ 41'17		direct	3127 Sep 02 20:37	21° ♊ 18'02	
opposition	3119 May 26 19:10	5° ♊ 19'27	1°41'21				
min. Earth dist.	3119 May 27 13:50	5° ♊ 18'11	29.36141 AU	conjunction	3127 Dec 16 20:08	23° ♊ 47'26	1°24'09
direct	3119 Aug 16 01:19	3° ♊ 55'05		minimum elong	3127 Dec 16 20:08	23° ♊ 47'26	1°24'09
				max. Earth dist.	3127 Dec 16 05:26	23° ♊ 46'04	31.33328 AU
conjunction	3119 Nov 29 15:59	6° ♊ 25'03	1°34'31	retrograde	3128 Mar 28 07:20	26° ♊ 14'27	
minimum elong	3119 Nov 29 15:59	6° ♊ 25'03	1°34'31	opposition	3128 Jun 15 05:37	24° ♊ 52'18	1°28'55
max. Earth dist.	3119 Nov 28 20:35	6° ♊ 23'14	31.36090 AU	min. Earth dist.	3128 Jun 15 20:11	24° ♊ 51'19	29.33224 AU
retrograde	3120 Mar 10 20:45	8° ♊ 51'37		direct	3128 Sep 04 08:57	23° ♊ 28'08	
opposition	3120 May 28 06:48	7° ♊ 29'48	1°40'31				
min. Earth dist.	3120 May 29 00:20	7° ♊ 28'37	29.36205 AU	conjunction	3128 Dec 18 05:13	25° ♊ 57'28	1°22'17
direct	3120 Aug 17 11:57	6° ♊ 05'30		minimum elong	3128 Dec 18 05:13	25° ♊ 57'28	1°22'17
max. Earth dist.	3120 Nov 30 07:18	8° ♊ 33'43	31.36091 AU	max. Earth dist.	3128 Dec 17 14:33	25° ♊ 56'06	31.32994 AU
				retrograde	3129 Mar 30 18:07	28° ♊ 24'34	
conjunction	3120 Dec 01 01:40	8° ♊ 35'26	1°33'40	opposition	3129 Jun 17 17:34	27° ♊ 02'24	1°26'52
minimum elong	3120 Dec 01 01:41	8° ♊ 35'26	1°33'39	min. Earth dist.	3129 Jun 18 06:26	27° ♊ 01'32	29.32920 AU
retrograde	3121 Mar 13 06:09	11° ♊ 02'05		direct	3129 Sep 06 20:25	25° ♊ 38'17	
opposition	3121 May 30 18:37	9° ♊ 40'16	1°39'33				
min. Earth dist.	3121 May 31 13:00	9° ♊ 39'01	29.36146 AU	conjunction	3129 Dec 20 14:34	28° ♊ 07'35	1°20'19
direct	3121 Aug 19 21:52	8° ♊ 16'00		minimum elong	3129 Dec 20 14:34	28° ♊ 07'35	1°20'19
				max. Earth dist.	3129 Dec 20 01:17	28° ♊ 06'20	31.32714 AU
conjunction	3121 Dec 03 11:23	10° ♊ 45'53	1°32'41		3130 Feb 15 04:31	0° ♊	
minimum elong	3121 Dec 03 11:23	10° ♊ 45'53	1°32'42	retrograde	3130 Apr 02 03:52	0° ♊ 34'48	
max. Earth dist.	3121 Dec 02 16:50	10° ♊ 44'09	31.35971 AU		3130 May 20 03:00	30° ♋	
retrograde	3122 Mar 15 16:39	13° ♊ 12'35		opposition	3130 Jun 20 05:37	29° ♊ 12'37	1°24'41
opposition	3122 Jun 02 06:10	11° ♊ 50'46	1°38'26	min. Earth dist.	3130 Jun 20 18:52	29° ♊ 11'43	29.32652 AU
min. Earth dist.	3122 Jun 02 23:20	11° ♊ 49'36	29.35946 AU	direct	3130 Sep 09 06:56	27° ♊ 48'34	
direct	3122 Aug 22 09:57	10° ♊ 26'32			3130 Dec 15 01:59	0° ♊	
conjunction	3122 Dec 05 21:08	12° ♊ 56'22	1°31'35	conjunction	3130 Dec 22 23:51	0° ♊ 17'49	1°18'13
minimum elong	3122 Dec 05 21:09	12° ♊ 56'22	1°31'34	minimum elong	3130 Dec 22 23:51	0° ♊ 17'49	1°18'13
max. Earth dist.	3122 Dec 05 02:43	12° ♊ 54'38	31.35696 AU	max. Earth dist.	3130 Dec 22 11:05	0° ♊ 16'37	31.32461 AU

retrograde	3131 Apr 04 14:22	2°♊45'09		opposition	3139 Jul 10 21:42	18°♊49'15	1°00'03
opposition	3131 Jun 22 17:47	1°♊22'59	1°22'23	min. Earth dist.	3139 Jul 11 05:37	18°♊48'43	29.26419 AU
min. Earth dist.	3131 Jun 23 05:21	1°♊22'12	29.32377 AU	direct	3139 Sep 29 14:55	17°♊25'30	
	3131 Sep 03 20:41	30°♊♌					
direct	3131 Sep 11 18:29	29°♊59'00		conjunction	3140 Jan 11 11:40	19°♊54'16	0°54'43
	3131 Sep 19 13:53	0°♊		minimum elong	3140 Jan 11 11:41	19°♊54'17	0°54'43
				max. Earth dist.	3140 Jan 11 04:42	19°♊53'37	31.25912 AU
conjunction	3131 Dec 25 09:03	2°♊28'13	1°16'00	retrograde	3140 Apr 23 17:19	22°♊22'42	
minimum elong	3131 Dec 25 09:03	2°♊28'13	1°16'01	opposition	3140 Jul 12 10:15	21°♊00'03	0°56'50
max. Earth dist.	3131 Dec 24 20:45	2°♊27'04	31.32161 AU	min. Earth dist.	3140 Jul 12 16:02	20°♊59'39	29.25481 AU
retrograde	3132 Apr 06 01:31	4°♊55'42		direct	3140 Oct 01 02:44	19°♊36'19	
opposition	3132 Jun 24 06:13	3°♊33'30	1°19'58				
min. Earth dist.	3132 Jun 24 18:04	3°♊32'42	29.32050 AU	conjunction	3141 Jan 12 20:52	22°♊05'03	0°51'39
direct	3132 Sep 13 04:02	2°♊09'36		minimum elong	3141 Jan 12 20:53	22°♊05'03	0°51'39
				max. Earth dist.	3141 Jan 12 14:33	22°♊04'27	31.25017 AU
conjunction	3132 Dec 26 18:28	4°♊38'47	1°13'41	retrograde	3141 Apr 26 04:13	24°♊33'37	
minimum elong	3132 Dec 26 18:28	4°♊38'47	1°13'41	opposition	3141 Jul 14 22:47	23°♊10'55	0°53'31
max. Earth dist.	3132 Dec 26 07:14	4°♊37'43	31.31794 AU	min. Earth dist.	3141 Jul 15 04:26	23°♊10'32	29.24638 AU
retrograde	3133 Apr 08 12:22	7°♊06'23		direct	3141 Oct 03 11:52	21°♊47'13	
opposition	3133 Jun 26 18:28	5°♊44'11	1°17'26				
min. Earth dist.	3133 Jun 27 05:13	5°♊43'27	29.31616 AU	conjunction	3142 Jan 15 06:09	24°♊15'55	0°48'31
direct	3133 Sep 15 15:31	4°♊20'19		minimum elong	3142 Jan 15 06:09	24°♊15'55	0°48'32
				max. Earth dist.	3142 Jan 15 01:27	24°♊15'28	31.24219 AU
conjunction	3133 Dec 29 03:49	6°♊49'28	1°11'15	retrograde	3142 Apr 28 15:05	26°♊44'39	
minimum elong	3133 Dec 29 03:49	6°♊49'28	1°11'16	opposition	3142 Jul 17 11:24	25°♊21'54	0°50'08
max. Earth dist.	3133 Dec 28 16:11	6°♊48'23	31.31298 AU	min. Earth dist.	3142 Jul 17 15:24	25°♊21'38	29.23855 AU
retrograde	3134 Apr 11 00:44	9°♊17'12		direct	3142 Oct 05 22:54	23°♊58'16	
opposition	3134 Jun 29 06:57	7°♊54'58	1°14'47				
min. Earth dist.	3134 Jun 29 17:39	7°♊54'15	29.31052 AU	conjunction	3143 Jan 17 15:16	26°♊26'56	0°45'19
direct	3134 Sep 18 02:04	6°♊31'10		minimum elong	3143 Jan 17 15:16	26°♊26'56	0°45'19
				max. Earth dist.	3143 Jan 17 10:39	26°♊26'30	31.23465 AU
conjunction	3134 Dec 31 13:17	9°♊00'16	1°08'44	retrograde	3143 May 01 03:54	28°♊55'50	
minimum elong	3134 Dec 31 13:17	9°♊00'16	1°08'43	opposition	3143 Jul 20 00:12	27°♊33'04	0°46'40
max. Earth dist.	3134 Dec 31 03:07	8°♊59'19	31.30655 AU	min. Earth dist.	3143 Jul 20 03:39	27°♊32'50	29.23120 AU
retrograde	3135 Apr 13 11:53	11°♊28'07		direct	3143 Oct 08 09:05	26°♊09'29	
opposition	3135 Jul 01 19:30	10°♊05'51	1°12'02				
min. Earth dist.	3135 Jul 02 05:46	10°♊05'09	29.30319 AU	conjunction	3144 Jan 20 00:40	28°♊38'07	0°42'03
direct	3135 Sep 20 15:26	8°♊42'05		minimum elong	3144 Jan 20 00:40	28°♊38'07	0°42'03
				max. Earth dist.	3144 Jan 19 22:01	28°♊37'52	31.22733 AU
conjunction	3136 Jan 02 22:39	11°♊11'08	1°06'06		3144 Feb 27 04:29	0°♊	
minimum elong	3136 Jan 02 22:39	11°♊11'08	1°06'07	retrograde	3144 May 02 15:52	1°♊07'12	
max. Earth dist.	3136 Jan 02 11:51	11°♊10'07	31.29858 AU		3144 Jul 11 20:26	30°♊♌	
retrograde	3136 Apr 15 00:28	13°♊39'06		opposition	3144 Jul 21 13:01	29°♊44'23	0°43'08
opposition	3136 Jul 03 08:02	12°♊16'46	1°09'11	min. Earth dist.	3144 Jul 21 15:42	29°♊44'12	29.22372 AU
min. Earth dist.	3136 Jul 03 17:22	12°♊16'08	29.29454 AU	direct	3144 Oct 09 21:06	28°♊20'52	
direct	3136 Sep 22 02:27	10°♊53'00			3144 Dec 30 04:50	0°♊	
conjunction	3137 Jan 04 08:01	13°♊21'59	1°03'23	conjunction	3145 Jan 21 09:56	0°♊49'29	0°38'42
minimum elong	3137 Jan 04 08:01	13°♊21'59	1°03'22	minimum elong	3145 Jan 21 09:56	0°♊49'29	0°38'41
max. Earth dist.	3137 Jan 03 22:44	13°♊21'07	31.28928 AU	max. Earth dist.	3145 Jan 21 06:59	0°♊49'12	31.21976 AU
retrograde	3137 Apr 17 09:50	15°♊50'04		retrograde	3145 May 05 04:59	3°♊18'44	
opposition	3137 Jul 05 20:39	14°♊27'39	1°06'14	opposition	3145 Jul 24 01:52	1°♊55'53	0°39'32
min. Earth dist.	3137 Jul 06 06:05	14°♊27'00	29.28465 AU	min. Earth dist.	3145 Jul 24 03:27	1°♊55'46	29.21584 AU
direct	3137 Sep 24 15:19	13°♊03'53		direct	3145 Oct 12 07:11	0°♊32'24	
conjunction	3138 Jan 06 17:16	15°♊32'48	1°00'35	conjunction	3146 Jan 23 19:30	3°♊01'00	0°35'18
minimum elong	3138 Jan 06 17:17	15°♊32'48	1°00'35	minimum elong	3146 Jan 23 19:30	3°♊01'00	0°35'19
max. Earth dist.	3138 Jan 06 07:55	15°♊31'55	31.27918 AU	max. Earth dist.	3146 Jan 23 18:01	3°♊00'52	31.21135 AU
retrograde	3138 Apr 19 21:07	18°♊00'58		retrograde	3146 May 07 15:59	5°♊30'25	
opposition	3138 Jul 08 08:59	16°♊38'28	1°03'11	opposition	3146 Jul 26 14:46	4°♊07'30	0°35'52
min. Earth dist.	3138 Jul 08 16:49	16°♊37'56	29.27432 AU	min. Earth dist.	3146 Jul 26 16:28	4°♊07'24	29.20688 AU
direct	3138 Sep 27 03:37	15°♊14'42		direct	3146 Oct 14 20:00	2°♊44'04	
conjunction	3139 Jan 09 02:33	17°♊43'33	0°57'41	conjunction	3147 Jan 26 05:03	5°♊12'38	0°31'51
minimum elong	3139 Jan 09 02:34	17°♊43'33	0°57'40	minimum elong	3147 Jan 26 05:03	5°♊12'38	0°31'51
max. Earth dist.	3139 Jan 08 18:34	17°♊42'48	31.26883 AU	max. Earth dist.	3147 Jan 26 03:31	5°♊12'30	31.20194 AU
retrograde	3139 Apr 22 07:15	20°♊11'50		retrograde	3147 May 10 05:13	7°♊42'12	

opposition	3147 Jul 29 03:47	6°19'13	0°32'09	direct	3154 Nov 01 14:26	20°17'22	
min. Earth dist.	3147 Jul 29 03:57	6°19'13	29.19679 AU				
direct	3147 Oct 17 08:38	4°55'48		conjunction	3155 Feb 12 09:52	22°45'35	0°03'05
				minimum elong	3155 Feb 12 09:52	22°45'35	0°03'04
conjunction	3148 Jan 28 14:37	7°24'20	0°28'22	behind sun begin	3155 Feb 12 03:29	22°45'01	
minimum elong	3148 Jan 28 14:38	7°24'20	0°28'22	behind sun end	3155 Feb 12 16:14	22°46'10	
max. Earth dist.	3148 Jan 28 13:59	7°24'16	31.19111 AU	max. Earth dist.	3155 Feb 12 15:52	22°46'08	31.10767 AU
retrograde	3148 May 11 16:17	9°54'03		retrograde	3155 May 28 02:09	25°16'22	
opposition	3148 Jul 30 16:57	8°30'59	0°28'24	opposition	3155 Aug 16 11:41	23°52'42	0°01'14
min. Earth dist.	3148 Jul 30 17:37	8°30'56	29.18531 AU	min. Earth dist.	3155 Aug 16 05:34	23°53'07	29.10321 AU
direct	3148 Oct 18 20:23	7°07'34		direct	3155 Nov 04 02:40	22°29'21	
				desc. node	3155 Dec 09 03:24	22°49'49	
conjunction	3149 Jan 30 00:19	9°36'01	0°24'49				
minimum elong	3149 Jan 30 00:19	9°36'01	0°24'49	conjunction	3156 Feb 14 19:29	24°57'35	0°00'-41
max. Earth dist.	3149 Jan 30 00:20	9°36'01	31.17910 AU	minimum elong	3156 Feb 14 19:30	24°57'35	0°00'42
retrograde	3149 May 14 02:51	12°05'51		behind sun begin	3156 Feb 14 13:07	24°57'00	
opposition	3149 Aug 02 05:44	10°42'42	0°24'36	behind sun end	3156 Feb 15 01:53	24°58'09	
min. Earth dist.	3149 Aug 02 04:47	10°42'46	29.17266 AU	max. Earth dist.	3156 Feb 15 01:59	24°58'10	31.09892 AU
direct	3149 Oct 21 08:50	9°19'15		retrograde	3156 May 29 16:35	27°28'33	
				opposition	3156 Aug 18 00:41	26°04'52	0°-2'-42
conjunction	3150 Feb 01 09:54	11°47'39	0°21'15	min. Earth dist.	3156 Aug 17 16:48	26°05'24	29.09468 AU
minimum elong	3150 Feb 01 09:54	11°47'39	0°21'16	direct	3156 Nov 05 14:42	24°41'34	
max. Earth dist.	3150 Feb 01 10:06	11°47'40	31.16603 AU				
retrograde	3150 May 16 13:55	14°17'37		conjunction	3157 Feb 16 05:27	27°09'49	0°-4'-26
opposition	3150 Aug 04 18:49	12°54'21	0°20'46	minimum elong	3157 Feb 16 05:27	27°09'49	0°04'27
min. Earth dist.	3150 Aug 04 17:59	12°54'24	29.15941 AU	behind sun begin	3157 Feb 15 23:09	27°09'15	
direct	3150 Oct 23 19:16	11°30'53		behind sun end	3157 Feb 16 11:44	27°10'23	
				max. Earth dist.	3157 Feb 16 12:58	27°10'31	31.09044 AU
conjunction	3151 Feb 03 19:25	13°59'12	0°17'40	retrograde	3157 Jun 01 04:34	29°41'00	
minimum elong	3151 Feb 03 19:25	13°59'12	0°17'39	opposition	3157 Aug 20 13:44	28°17'17	0°-6'-39
max. Earth dist.	3151 Feb 03 21:19	13°59'23	31.15275 AU	min. Earth dist.	3157 Aug 20 06:13	28°17'48	29.08627 AU
	3151 Mar 03 07:41	15°		direct	3157 Nov 08 01:46	26°54'03	
retrograde	3151 May 19 00:40	16°29'18					
opposition	3151 Aug 07 07:47	15°05'55	0°16'54	conjunction	3158 Feb 18 15:30	29°22'19	0°-8'-6
min. Earth dist.	3151 Aug 07 05:16	15°06'05	29.14620 AU	minimum elong	3158 Feb 18 15:30	29°22'19	0°08'07
	3151 Aug 10 23:00	15°		behind sun begin	3158 Feb 18 09:47	29°21'48	
direct	3151 Oct 26 07:20	13°42'26		behind sun end	3158 Feb 18 21:13	29°22'50	
	3152 Jan 04 19:23	15°		max. Earth dist.	3158 Feb 18 23:56	29°23'06	31.08197 AU
conjunction	3152 Feb 06 04:54	16°10'42	0°14'02		3158 Mar 07 08:25	0°	
minimum elong	3152 Feb 06 04:54	16°10'42	0°14'03	retrograde	3158 Jun 03 16:27	1°53'41	
behind sun begin	3152 Feb 06 01:34	16°10'24		opposition	3158 Aug 23 02:50	0°29'57	0°-10'-36
behind sun end	3152 Feb 06 08:14	16°11'00		min. Earth dist.	3158 Aug 22 17:38	0°30'35	29.07753 AU
max. Earth dist.	3152 Feb 06 06:55	16°10'53	31.13989 AU		3158 Sep 10 21:23	30°	
retrograde	3152 May 20 13:12	18°40'57		direct	3158 Nov 10 14:08	29°06'47	
opposition	3152 Aug 08 20:46	17°17'27	0°13'01		3159 Jan 06 19:29	0°	
min. Earth dist.	3152 Aug 08 17:35	17°17'40	29.13390 AU	conjunction	3159 Feb 21 01:29	1°35'03	0°-11'-47
direct	3152 Oct 27 17:17	15°53'59		minimum elong	3159 Feb 21 01:29	1°35'03	0°11'48
				behind sun begin	3159 Feb 20 20:56	1°34'38	
conjunction	3153 Feb 07 14:33	18°22'12	0°10'24	behind sun end	3159 Feb 21 06:02	1°35'28	
minimum elong	3153 Feb 07 14:33	18°22'12	0°10'23	max. Earth dist.	3159 Feb 21 09:58	1°35'51	31.07283 AU
behind sun begin	3153 Feb 07 09:28	18°21'45		retrograde	3159 Jun 06 04:55	4°06'38	
behind sun end	3153 Feb 07 19:38	18°22'40		opposition	3159 Aug 25 16:13	2°42'50	0°-14'-32
max. Earth dist.	3153 Feb 07 18:43	18°22'35	31.12804 AU	min. Earth dist.	3159 Aug 25 07:20	2°43'27	29.06806 AU
retrograde	3153 May 23 00:46	20°52'37		direct	3159 Nov 13 00:46	1°19'42	
opposition	3153 Aug 11 09:42	19°29'03	0°09'06				
min. Earth dist.	3153 Aug 11 05:24	19°29'21	29.12255 AU	conjunction	3160 Feb 23 11:52	3°47'59	0°-15'-26
direct	3153 Oct 30 04:49	18°05'36		minimum elong	3160 Feb 23 11:52	3°47'59	0°15'26
				behind sun begin	3160 Feb 23 09:49	3°47'48	
conjunction	3154 Feb 10 00:05	20°33'49	0°06'45	behind sun end	3160 Feb 23 13:54	3°48'10	
minimum elong	3154 Feb 10 00:05	20°33'49	0°06'46	max. Earth dist.	3160 Feb 23 21:40	3°48'54	31.06282 AU
behind sun begin	3154 Feb 09 18:06	20°33'16		retrograde	3160 Jun 07 16:37	6°19'44	
behind sun end	3154 Feb 10 06:04	20°34'21		opposition	3160 Aug 27 05:21	4°55'53	0°-18'-27
max. Earth dist.	3154 Feb 10 04:16	20°34'11	31.11734 AU	min. Earth dist.	3160 Aug 26 19:16	4°56'34	29.05743 AU
retrograde	3154 May 25 14:09	23°04'24		direct	3160 Nov 14 13:02	3°32'45	
opposition	3154 Aug 13 22:35	21°40'47	0°05'10				
min. Earth dist.	3154 Aug 13 16:51	21°41'10	29.11244 AU	conjunction	3161 Feb 24 22:09	6°01'01	0°-19'-5

minimum elong	3161 Feb 24 22:09	6° ✕ 01'01	0°19'06	min. Earth dist.	3169 Sep 16 10:52	24° ✕ 55'04	28.96198 AU
max. Earth dist.	3161 Feb 25 07:24	6° ✕ 01'53	31.05160 AU	opposition	3169 Sep 17 03:30	24° ✕ 53'55	0°-51'-49
retrograde	3161 Jun 10 05:06	8° ✕ 32'55		direct	3169 Dec 04 20:24	23° ✕ 30'48	
opposition	3161 Aug 29 18:39	7° ✕ 08'59	0°-22'-20				
min. Earth dist.	3161 Aug 29 08:33	7° ✕ 09'41	29.04568 AU	conjunction	3170 Mar 16 21:06	25° ✕ 58'58	0°-50'-3
direct	3161 Nov 16 23:15	5° ✕ 45'51		minimum elong	3170 Mar 16 21:06	25° ✕ 58'58	0°50'04
				max. Earth dist.	3170 Mar 17 13:18	26° ✕ 00'30	30.95798 AU
conjunction	3162 Feb 27 08:35	8° ✕ 14'05	0°-22'-42	retrograde	3170 Jul 01 00:35	28° ✕ 32'12	
minimum elong	3162 Feb 27 08:34	8° ✕ 14'05	0°22'42	opposition	3170 Sep 19 16:42	27° ✕ 07'37	0°-55'-13
max. Earth dist.	3162 Feb 27 19:26	8° ✕ 15'06	31.03929 AU	min. Earth dist.	3170 Sep 19 00:04	27° ✕ 08'46	28.95468 AU
retrograde	3162 Jun 12 16:16	10° ✕ 46'07		direct	3170 Dec 07 06:23	25° ✕ 44'33	
opposition	3162 Sep 01 07:50	9° ✕ 22'05	0°-26'-11				
min. Earth dist.	3162 Aug 31 21:08	9° ✕ 22'49	29.03295 AU	conjunction	3171 Mar 19 08:18	28° ✕ 12'45	0°-53'-12
direct	3162 Nov 19 10:47	7° ✕ 58'56		minimum elong	3171 Mar 19 08:18	28° ✕ 12'45	0°53'14
				max. Earth dist.	3171 Mar 20 02:05	28° ✕ 14'27	30.95047 AU
conjunction	3163 Mar 01 18:53	10° ✕ 27'06	0°-26'-17		3171 May 10 11:29	0° Υ	
minimum elong	3163 Mar 01 18:53	10° ✕ 27'06	0°26'19	retrograde	3171 Jul 03 12:26	0° Υ 46'09	
max. Earth dist.	3163 Mar 02 05:28	10° ✕ 28'06	31.02649 AU		3171 Aug 29 00:09	30° ℞ ✕	
retrograde	3163 Jun 15 05:58	12° ✕ 59'17		opposition	3171 Sep 22 05:52	29° ✕ 21'33	0°-58'-33
opposition	3163 Sep 03 21:03	11° ✕ 35'07	0°-30'00	min. Earth dist.	3171 Sep 21 12:49	29° ✕ 22'43	28.94692 AU
min. Earth dist.	3163 Sep 03 09:17	11° ✕ 35'55	29.02023 AU	direct	3171 Dec 09 17:45	27° ✕ 58'31	
direct	3163 Nov 21 20:49	10° ✕ 11'56			3172 Mar 09 00:29	0° Υ	
conjunction	3164 Mar 03 05:16	12° ✕ 40'04	0°-29'-49	conjunction	3172 Mar 20 19:32	0° Υ 26'45	0°-56'-16
minimum elong	3164 Mar 03 05:16	12° ✕ 40'04	0°29'50	minimum elong	3172 Mar 20 19:31	0° Υ 26'45	0°56'17
max. Earth dist.	3164 Mar 03 17:27	12° ✕ 41'13	31.01380 AU	max. Earth dist.	3172 Mar 21 12:36	0° Υ 28'23	30.94235 AU
retrograde	3164 Jun 16 18:05	15° ✕ 12'22		retrograde	3172 Jul 05 02:58	3° Υ 00'19	
opposition	3164 Sep 05 10:14	13° ✕ 48'06	0°-33'-46	opposition	3172 Sep 23 19:04	1° Υ 35'41	-1°-1'-47
min. Earth dist.	3164 Sep 04 22:14	13° ✕ 48'55	29.00789 AU	min. Earth dist.	3172 Sep 23 01:34	1° Υ 36'53	28.93837 AU
direct	3164 Nov 23 09:19	12° ✕ 24'53		direct	3172 Dec 11 03:49	0° Υ 12'39	
conjunction	3165 Mar 05 15:44	14° ✕ 53'00	0°-33'-20	conjunction	3173 Mar 23 07:02	2° Υ 40'56	0°-59'-15
minimum elong	3165 Mar 05 15:44	14° ✕ 53'00	0°33'21	minimum elong	3173 Mar 23 07:02	2° Υ 40'56	0°59'17
max. Earth dist.	3165 Mar 06 04:18	14° ✕ 54'11	31.00195 AU	max. Earth dist.	3173 Mar 24 00:58	2° Υ 42'38	30.93306 AU
retrograde	3165 Jun 19 08:30	17° ✕ 25'25		retrograde	3173 Jul 07 15:15	5° Υ 14'38	
opposition	3165 Sep 07 23:07	16° ✕ 01'04	0°-37'-30	opposition	3173 Sep 26 08:09	3° Υ 49'56	-1°-4'-56
min. Earth dist.	3165 Sep 07 09:24	16° ✕ 02'00	28.99659 AU	min. Earth dist.	3173 Sep 25 15:03	3° Υ 51'07	28.92850 AU
direct	3165 Nov 25 21:03	14° ✕ 37'50		direct	3173 Dec 13 15:54	2° Υ 26'54	
conjunction	3166 Mar 08 02:15	17° ✕ 05'56	0°-36'-47	conjunction	3174 Mar 25 18:31	4° Υ 55'12	-1°-2'-9
minimum elong	3166 Mar 08 02:15	17° ✕ 05'56	0°36'47	minimum elong	3174 Mar 25 18:31	4° Υ 55'12	1°02'10
max. Earth dist.	3166 Mar 08 15:52	17° ✕ 07'14	30.99110 AU	max. Earth dist.	3174 Mar 26 12:11	4° Υ 56'53	30.92274 AU
retrograde	3166 Jun 21 20:40	19° ✕ 38'30		retrograde	3174 Jul 10 06:03	7° Υ 29'01	
opposition	3166 Sep 10 12:18	18° ✕ 14'04	0°-41'-10	opposition	3174 Sep 28 21:17	6° Υ 04'15	-1°-7'-59
min. Earth dist.	3166 Sep 09 22:44	18° ✕ 15'00	28.98643 AU	min. Earth dist.	3174 Sep 28 03:06	6° Υ 05'30	28.91772 AU
direct	3166 Nov 28 08:03	16° ✕ 50'51		direct	3174 Dec 16 03:34	4° Υ 41'11	
conjunction	3167 Mar 10 12:46	19° ✕ 18'57	0°-40'-11	conjunction	3175 Mar 28 05:55	7° Υ 09'30	-1°-4'-58
minimum elong	3167 Mar 10 12:45	19° ✕ 18'57	0°40'13	minimum elong	3175 Mar 28 05:55	7° Υ 09'30	1°04'59
max. Earth dist.	3167 Mar 11 03:36	19° ✕ 20'21	30.98158 AU	max. Earth dist.	3175 Mar 29 00:05	7° Υ 11'13	30.91152 AU
retrograde	3167 Jun 24 09:59	21° ✕ 51'40		retrograde	3175 Jul 12 18:37	9° Υ 43'25	
min. Earth dist.	3167 Sep 12 09:53	20° ✕ 28'14	28.97746 AU	opposition	3175 Oct 01 10:28	8° Υ 18'34	-1°-10'-56
opposition	3167 Sep 13 01:22	20° ✕ 27'11	0°-44'-47	min. Earth dist.	3175 Sep 30 17:00	8° Υ 19'46	28.90638 AU
direct	3167 Nov 30 21:01	19° ✕ 03'59		direct	3175 Dec 18 14:45	6° Υ 55'27	
conjunction	3168 Mar 11 23:25	21° ✕ 32'06	0°-43'-32	conjunction	3176 Mar 29 17:31	9° Υ 23'46	-1°-7'-40
minimum elong	3168 Mar 11 23:24	21° ✕ 32'06	0°43'33	minimum elong	3176 Mar 29 17:31	9° Υ 23'46	1°07'40
max. Earth dist.	3168 Mar 12 14:26	21° ✕ 33'31	30.97305 AU	max. Earth dist.	3176 Mar 30 12:27	9° Υ 25'34	30.90022 AU
retrograde	3168 Jun 25 23:34	24° ✕ 04'59		retrograde	3176 Jul 14 08:57	11° Υ 57'46	
opposition	3168 Sep 14 14:27	22° ✕ 40'27	0°-48'-20	opposition	3176 Oct 02 23:15	10° Υ 32'50	-1°-13'-47
min. Earth dist.	3168 Sep 13 23:11	22° ✕ 41'30	28.96948 AU	min. Earth dist.	3176 Oct 02 04:24	10° Υ 34'08	28.89524 AU
direct	3168 Dec 02 07:58	21° ✕ 17'17		direct	3176 Dec 20 04:22	9° Υ 09'41	
conjunction	3169 Mar 14 10:19	23° ✕ 45'26	0°-46'-50	conjunction	3177 Apr 01 05:04	11° Υ 38'01	-1°-10'-16
minimum elong	3169 Mar 14 10:19	23° ✕ 45'26	0°46'52	minimum elong	3177 Apr 01 05:04	11° Υ 38'01	1°10'18
max. Earth dist.	3169 Mar 15 02:54	23° ✕ 47'00	30.96538 AU	max. Earth dist.	3177 Apr 01 23:50	11° Υ 39'47	30.88928 AU
retrograde	3169 Jun 28 11:37	26° ✕ 18'28		retrograde	3177 Jul 16 23:14	14° Υ 12'06	

opposition	3177 Oct 05 12:14	12° Υ 47'05	-1°-16'-31		3185 Nov 20 17:33	30° \mathcal{R} Υ	
min. Earth dist.	3177 Oct 04 17:50	12° Υ 48'21	28.88485 AU	direct	3186 Jan 09 12:03	29° Υ 21'09	
direct	3177 Dec 22 16:09	11° Υ 23'54			3186 Feb 26 13:18	0° \mathcal{B}	
conjunction	3178 Apr 03 16:39	13° Υ 52'15	-1°-12'-46	conjunction	3186 Apr 21 17:34	1° \mathcal{B} 49'51	-1°-28'-33
minimum elong	3178 Apr 03 16:39	13° Υ 52'15	1°12'47	minimum elong	3186 Apr 21 17:34	1° \mathcal{B} 49'51	1°28'34
max. Earth dist.	3178 Apr 04 12:55	13° Υ 54'10	30.87936 AU	max. Earth dist.	3186 Apr 22 15:06	1° \mathcal{B} 51'53	30.83083 AU
retrograde	3178 Jul 19 11:11	16° Υ 26'26		retrograde	3186 Aug 06 22:06	4° \mathcal{B} 24'45	
min. Earth dist.	3178 Oct 07 05:13	15° Υ 02'43	28.87553 AU	min. Earth dist.	3186 Oct 25 10:56	3° \mathcal{B} 00'51	28.82838 AU
opposition	3178 Oct 08 01:04	15° Υ 01'21	-1°-19'-8	opposition	3186 Oct 26 07:13	2° \mathcal{B} 59'27	-1°-35'-28
direct	3178 Dec 25 05:06	13° Υ 38'09		direct	3187 Jan 11 23:47	1° \mathcal{B} 36'12	
conjunction	3179 Apr 06 04:17	16° Υ 06'31	-1°-15'-10	conjunction	3187 Apr 24 06:20	4° \mathcal{B} 04'55	-1°-29'-57
minimum elong	3179 Apr 06 04:17	16° Υ 06'31	1°15'12	minimum elong	3187 Apr 24 06:20	4° \mathcal{B} 04'55	1°29'59
max. Earth dist.	3179 Apr 07 00:09	16° Υ 08'24	30.87068 AU	max. Earth dist.	3187 Apr 25 04:36	4° \mathcal{B} 07'01	30.82385 AU
retrograde	3179 Jul 22 00:29	18° Υ 40'48		retrograde	3187 Aug 09 11:16	6° \mathcal{B} 39'49	
opposition	3179 Oct 10 13:56	17° Υ 15'40	-1°-21'-37	opposition	3187 Oct 28 19:41	5° \mathcal{B} 14'28	-1°-36'-53
min. Earth dist.	3179 Oct 09 18:05	17° Υ 17'03	28.86765 AU	min. Earth dist.	3187 Oct 27 22:40	5° \mathcal{B} 15'56	28.82114 AU
direct	3179 Dec 27 15:42	15° Υ 52'28		direct	3188 Jan 14 13:07	3° \mathcal{B} 51'10	
conjunction	3180 Apr 07 16:10	18° Υ 20'52	-1°-17'-27	conjunction	3188 Apr 25 18:56	6° \mathcal{B} 19'54	-1°-31'-12
minimum elong	3180 Apr 07 16:09	18° Υ 20'52	1°17'27	minimum elong	3188 Apr 25 18:56	6° \mathcal{B} 19'54	1°31'13
max. Earth dist.	3180 Apr 08 13:42	18° Υ 22'55	30.86336 AU	max. Earth dist.	3188 Apr 26 16:09	6° \mathcal{B} 21'55	30.81655 AU
retrograde	3180 Jul 23 12:35	20° Υ 55'15		retrograde	3188 Aug 11 01:29	8° \mathcal{B} 54'49	
min. Earth dist.	3180 Oct 11 06:14	19° Υ 31'31	28.86091 AU	min. Earth dist.	3188 Oct 29 11:49	7° \mathcal{B} 30'50	28.81397 AU
opposition	3180 Oct 12 02:43	19° Υ 30'06	-1°-24'00	opposition	3188 Oct 30 08:13	7° \mathcal{B} 29'24	-1°-38'-10
direct	3180 Dec 29 03:40	18° Υ 06'54		direct	3189 Jan 16 00:43	6° \mathcal{B} 06'02	
conjunction	3181 Apr 10 04:00	20° Υ 35'20	-1°-19'-36	conjunction	3189 Apr 28 07:42	8° \mathcal{B} 34'48	-1°-32'-20
minimum elong	3181 Apr 10 03:59	20° Υ 35'20	1°19'38	minimum elong	3189 Apr 28 07:42	8° \mathcal{B} 34'48	1°32'21
max. Earth dist.	3181 Apr 11 01:00	20° Υ 37'20	30.85723 AU	max. Earth dist.	3189 Apr 29 06:10	8° \mathcal{B} 36'55	30.80952 AU
retrograde	3181 Jul 26 02:27	23° Υ 09'50		retrograde	3189 Aug 13 13:52	11° \mathcal{B} 09'43	
opposition	3181 Oct 14 15:24	21° Υ 44'39	-1°-26'-15	opposition	3189 Nov 01 20:31	9° \mathcal{B} 44'15	-1°-39'-17
min. Earth dist.	3181 Oct 13 18:24	21° Υ 46'06	28.85535 AU	min. Earth dist.	3189 Oct 31 23:50	9° \mathcal{B} 45'42	28.80729 AU
direct	3181 Dec 31 14:00	20° Υ 21'28		direct	3190 Jan 18 13:39	8° \mathcal{B} 20'50	
conjunction	3182 Apr 12 16:04	22° Υ 49'57	-1°-21'-39	conjunction	3190 Apr 30 20:20	10° \mathcal{B} 49'37	-1°-33'-19
minimum elong	3182 Apr 12 16:03	22° Υ 49'57	1°21'40	minimum elong	3190 Apr 30 20:20	10° \mathcal{B} 49'37	1°33'19
max. Earth dist.	3182 Apr 13 14:14	22° Υ 52'03	30.85197 AU	max. Earth dist.	3190 May 01 18:00	10° \mathcal{B} 51'40	30.80342 AU
retrograde	3182 Jul 28 13:49	25° Υ 24'33		retrograde	3190 Aug 16 03:21	13° \mathcal{B} 24'34	
min. Earth dist.	3182 Oct 16 07:27	24° Υ 00'49	28.85043 AU	min. Earth dist.	3190 Nov 03 11:54	12° \mathcal{B} 00'32	28.80189 AU
opposition	3182 Oct 17 04:14	23° Υ 59'22	-1°-28'-22	opposition	3190 Nov 04 08:52	11° \mathcal{B} 59'03	-1°-40'-16
direct	3183 Jan 03 01:15	22° Υ 36'12		direct	3191 Jan 21 00:34	10° \mathcal{B} 35'36	
conjunction	3183 Apr 15 04:08	25° Υ 04'44	-1°-23'-34	conjunction	3191 May 03 09:07	13° \mathcal{B} 04'25	-1°-34'-9
minimum elong	3183 Apr 15 04:08	25° Υ 04'44	1°23'36	minimum elong	3191 May 03 09:07	13° \mathcal{B} 04'25	1°34'10
max. Earth dist.	3183 Apr 16 02:06	25° Υ 06'49	30.84733 AU	max. Earth dist.	3191 May 04 07:50	13° \mathcal{B} 06'34	30.79857 AU
retrograde	3183 Jul 31 04:29	27° Υ 39'26			3191 Jun 29 19:45	15° \mathcal{B}	
opposition	3183 Oct 19 16:58	26° Υ 14'14	-1°-30'-21	retrograde	3191 Aug 18 14:28	15° \mathcal{B} 39'23	
min. Earth dist.	3183 Oct 18 19:20	26° Υ 15'45	28.84584 AU		3191 Oct 08 20:43	15° \mathcal{R} \mathcal{B}	
direct	3184 Jan 05 11:52	24° Υ 51'05		opposition	3191 Nov 06 21:10	14° \mathcal{B} 13'52	-1°-41'-5
conjunction	3184 Apr 16 16:33	27° Υ 19'41	-1°-25'-22	min. Earth dist.	3191 Nov 06 00:27	14° \mathcal{B} 15'19	28.79777 AU
minimum elong	3184 Apr 16 16:33	27° Υ 19'41	1°25'22	direct	3192 Jan 23 12:03	12° \mathcal{B} 50'23	
max. Earth dist.	3184 Apr 17 14:42	27° Υ 21'47	30.84248 AU		3192 Apr 26 09:44	15° \mathcal{B}	
retrograde	3184 Aug 01 17:15	29° Υ 54'28		conjunction	3192 May 04 22:00	15° \mathcal{B} 19'16	-1°-34'-51
min. Earth dist.	3184 Oct 20 09:10	28° Υ 30'41	28.84083 AU	minimum elong	3192 May 04 22:00	15° \mathcal{B} 19'16	1°34'51
opposition	3184 Oct 21 05:41	28° Υ 29'15	-1°-32'-12	max. Earth dist.	3192 May 05 20:17	15° \mathcal{B} 21'22	30.79529 AU
direct	3185 Jan 06 22:32	27° Υ 06'05		retrograde	3192 Aug 20 04:48	17° \mathcal{B} 54'15	
conjunction	3185 Apr 19 05:09	29° Υ 34'44	-1°-27'-1	min. Earth dist.	3192 Nov 07 11:37	16° \mathcal{B} 30'15	28.79526 AU
minimum elong	3185 Apr 19 05:09	29° Υ 34'44	1°27'03	opposition	3192 Nov 08 09:12	16° \mathcal{B} 28'44	-1°-41'-45
max. Earth dist.	3185 Apr 20 03:26	29° Υ 36'51	30.83715 AU	direct	3193 Jan 24 22:24	15° \mathcal{B} 05'14	
retrograde	3185 Apr 30 08:34	0° \mathcal{B}		conjunction	3193 May 07 10:58	17° \mathcal{B} 34'12	-1°-35'-24
opposition	3185 Aug 04 08:07	2° \mathcal{B} 09'35		minimum elong	3193 May 07 10:58	17° \mathcal{B} 34'12	1°35'26
min. Earth dist.	3185 Oct 23 18:21	0° \mathcal{B} 44'21	-1°-33'-54	max. Earth dist.	3193 May 08 09:38	17° \mathcal{B} 36'20	30.79342 AU
direct	3185 Oct 22 21:00	0° \mathcal{B} 45'50	28.83504 AU	retrograde	3193 Aug 22 16:45	20° \mathcal{B} 09'13	

opposition	3193 Nov 10 21:28	18° 8 43'44	-1°-42'-16	opposition	3201 Nov 28 21:40	6° II 47'45	-1°-40'-40
min. Earth dist.	3193 Nov 10 00:44	18° 8 45'11	28.79414 AU	min. Earth dist.	3201 Nov 28 03:08	6° II 49'04	28.79229 AU
direct	3194 Jan 27 08:44	17° 8 20'14		direct	3202 Feb 14 10:02	5° II 24'03	
conjunction	3194 May 09 23:53	19° 8 49'16	-1°-35'-48	conjunction	3202 May 28 12:06	7° II 53'35	-1°-33'-44
minimum elong	3194 May 09 23:53	19° 8 49'16	1°35'49	minimum elong	3202 May 28 12:06	7° II 53'35	1°33'45
max. Earth dist.	3194 May 10 22:55	19° 8 51'27	30.79305 AU	max. Earth dist.	3202 May 29 07:49	7° II 55'26	30.79083 AU
retrograde	3194 Aug 25 07:08	22° 8 24'20		retrograde	3202 Sep 12 18:01	10° II 28'23	
min. Earth dist.	3194 Nov 12 11:54	21° 8 00'24	28.79428 AU	opposition	3202 Dec 01 09:28	9° II 03'01	-1°-39'-46
opposition	3194 Nov 13 09:36	20° 8 58'53	-1°-42'-37	min. Earth dist.	3202 Nov 30 16:08	9° II 04'14	28.79159 AU
direct	3195 Jan 29 21:33	19° 8 35'24		direct	3203 Feb 16 21:11	7° II 39'14	
conjunction	3195 May 12 13:03	22° 8 04'32	-1°-36'-4	conjunction	3203 May 31 01:52	10° II 08'48	-1°-32'-50
minimum elong	3195 May 12 13:03	22° 8 04'32	1°36'06	minimum elong	3203 May 31 01:52	10° II 08'48	1°32'51
max. Earth dist.	3195 May 13 11:29	22° 8 06'39	30.79359 AU	max. Earth dist.	3203 May 31 21:23	10° II 10'38	30.79073 AU
retrograde	3195 Aug 27 20:48	24° 8 39'38		retrograde	3203 Sep 15 06:56	12° II 43'30	
opposition	3195 Nov 15 21:45	23° 8 14'13	-1°-42'-48	opposition	3203 Dec 03 20:55	11° II 18'08	-1°-38'-43
min. Earth dist.	3195 Nov 15 01:17	23° 8 15'40	28.79519 AU	min. Earth dist.	3203 Dec 03 02:55	11° II 19'24	28.79201 AU
direct	3196 Feb 01 08:13	21° 8 50'45		direct	3204 Feb 19 09:33	9° II 54'17	
conjunction	3196 May 14 02:31	24° 8 20'00	-1°-36'-10	conjunction	3204 Jun 01 15:37	12° II 23'55	-1°-31'-47
minimum elong	3196 May 14 02:31	24° 8 20'00	1°36'11	minimum elong	3204 Jun 01 15:37	12° II 23'55	1°31'47
max. Earth dist.	3196 May 15 01:27	24° 8 22'09	30.79466 AU	max. Earth dist.	3204 Jun 02 10:27	12° II 25'41	30.79173 AU
retrograde	3196 Aug 29 10:59	26° 8 55'06		retrograde	3204 Sep 16 19:14	14° II 58'32	
opposition	3196 Nov 17 09:48	25° 8 29'45	-1°-42'-51	opposition	3204 Dec 05 08:34	13° II 33'11	-1°-37'-31
min. Earth dist.	3196 Nov 16 12:53	25° 8 31'13	28.79615 AU	min. Earth dist.	3204 Dec 04 15:47	13° II 34'22	28.79375 AU
direct	3197 Feb 02 21:04	24° 8 06'17		direct	3205 Feb 20 19:41	12° II 09'17	
conjunction	3197 May 16 15:52	26° 8 35'37	-1°-36'-8	conjunction	3205 Jun 04 05:20	14° II 38'57	-1°-30'-35
minimum elong	3197 May 16 15:53	26° 8 35'37	1°36'09	minimum elong	3205 Jun 04 05:20	14° II 38'57	1°30'36
max. Earth dist.	3197 May 17 13:20	26° 8 37'39	30.79540 AU	max. Earth dist.	3205 Jun 05 00:39	14° II 40'46	30.79423 AU
retrograde	3197 Sep 01 02:22	29° 8 10'44		retrograde	3205 Sep 19 08:23	17° II 13'30	
opposition	3197 Nov 19 21:58	27° 8 45'25	-1°-42'-43	opposition	3205 Dec 07 20:01	15° II 48'11	-1°-36'-10
min. Earth dist.	3197 Nov 19 02:07	27° 8 46'48	28.79666 AU	min. Earth dist.	3205 Dec 07 02:33	15° II 49'25	28.79689 AU
direct	3198 Feb 05 09:01	26° 8 21'56		direct	3206 Feb 23 08:44	14° II 24'16	
conjunction	3198 May 19 05:34	28° 8 51'21	-1°-35'-56	conjunction	3206 Jun 06 19:05	16° II 54'01	-1°-29'-15
minimum elong	3198 May 19 05:34	28° 8 51'21	1°35'57	minimum elong	3206 Jun 06 19:05	16° II 54'01	1°29'16
max. Earth dist.	3198 May 20 03:36	28° 8 53'25	30.79550 AU	max. Earth dist.	3206 Jun 07 13:07	16° II 55'42	30.79813 AU
	3198 Jun 19 14:46	0° II		retrograde	3206 Sep 21 22:35	19° II 28'29	
retrograde	3198 Sep 03 15:36	1° II 26'26		opposition	3206 Dec 10 07:32	18° II 03'13	-1°-34'-40
opposition	3198 Nov 22 10:02	0° II 01'07	-1°-42'-26	min. Earth dist.	3206 Dec 09 14:58	18° II 04'24	28.80149 AU
min. Earth dist.	3198 Nov 21 14:28	0° II 02'30	28.79627 AU	direct	3207 Feb 25 20:08	16° II 39'17	
	3198 Nov 23 02:03	30° R 8		conjunction	3207 Jun 09 09:05	19° II 09'08	-1°-27'-46
direct	3199 Feb 07 22:39	28° 8 37'37		minimum elong	3207 Jun 09 09:05	19° II 09'08	1°27'48
	3199 Apr 21 02:55	0° II		max. Earth dist.	3207 Jun 10 03:51	19° II 10'54	30.80331 AU
conjunction	3199 May 21 19:08	1° II 07'04	-1°-35'-36	retrograde	3207 Sep 24 11:33	21° II 43'32	
minimum elong	3199 May 21 19:09	1° II 07'04	1°35'38	opposition	3207 Dec 12 18:57	20° II 18'22	-1°-33'00
max. Earth dist.	3199 May 22 15:32	1° II 09'00	30.79479 AU	min. Earth dist.	3207 Dec 12 02:36	20° II 19'31	28.80697 AU
retrograde	3199 Sep 06 05:28	3° II 42'07		direct	3208 Feb 28 09:21	18° II 54'26	
opposition	3199 Nov 24 22:05	2° II 16'48	-1°-42'00	conjunction	3208 Jun 10 23:03	21° II 24'22	-1°-26'-10
min. Earth dist.	3199 Nov 24 03:01	2° II 18'08	28.79520 AU	minimum elong	3208 Jun 10 23:03	21° II 24'22	1°26'10
direct	3200 Feb 10 10:12	0° II 53'14		max. Earth dist.	3208 Jun 11 16:10	21° II 25'59	30.80915 AU
conjunction	3200 May 23 08:56	3° II 22'43	-1°-35'-8	retrograde	3208 Sep 26 02:04	23° II 58'43	
minimum elong	3200 May 23 08:56	3° II 22'43	1°35'08	opposition	3208 Dec 14 06:18	22° II 33'37	-1°-31'-13
max. Earth dist.	3200 May 24 05:39	3° II 24'40	30.79338 AU	min. Earth dist.	3208 Dec 13 14:36	22° II 34'44	28.81294 AU
retrograde	3200 Sep 07 17:16	5° II 57'40		direct	3209 Mar 01 20:32	21° II 09'42	
opposition	3200 Nov 26 09:53	4° II 32'21	-1°-41'-24	conjunction	3209 Jun 13 13:15	23° II 39'45	-1°-24'-25
min. Earth dist.	3200 Nov 25 15:44	4° II 33'38	28.79360 AU	minimum elong	3209 Jun 13 13:16	23° II 39'45	1°24'26
direct	3201 Feb 11 22:40	3° II 08'43		max. Earth dist.	3209 Jun 14 06:38	23° II 41'23	30.81502 AU
conjunction	3201 May 25 22:34	5° II 38'14	-1°-34'-30	retrograde	3209 Sep 28 15:01	26° II 14'02	
minimum elong	3201 May 25 22:34	5° II 38'14	1°34'31	opposition	3209 Dec 16 17:46	24° II 49'01	-1°-29'-16
max. Earth dist.	3201 May 26 18:11	5° II 40'05	30.79194 AU	min. Earth dist.	3209 Dec 16 03:12	24° II 50'03	28.81856 AU
retrograde	3201 Sep 10 07:37	8° II 13'06		direct	3210 Mar 04 09:05	23° II 25'05	

conjunction	3210 Jun 16 03:20	25°II55'13	-1°-22'-33	conjunction	3218 Jul 04 20:36	13°☾56'00	-1°-3'-24
minimum elong	3210 Jun 16 03:20	25°II55'13	1°22'33	minimum elong	3218 Jul 04 20:36	13°☾56'00	1°03'25
max. Earth dist.	3210 Jun 16 18:59	25°II56'41	30.82042 AU	max. Earth dist.	3218 Jul 05 07:16	13°☾56'59	30.85383 AU
retrograde	3210 Oct 01 05:36	28°II29'26		retrograde	3218 Oct 19 07:45	16°☾29'05	
opposition	3210 Dec 19 05:12	27°II04'29	-1°-27'-12	opposition	3219 Jan 05 21:31	15°☾04'24	-1°-6'-15
min. Earth dist.	3210 Dec 18 14:46	27°II05'30	28.82347 AU	min. Earth dist.	3219 Jan 05 12:51	15°☾05'01	28.85821 AU
direct	3211 Mar 06 20:50	25°II40'31		direct	3219 Mar 24 21:11	13°☾39'59	
conjunction	3211 Jun 18 17:43	28°II10'44	-1°-20'-33	conjunction	3219 Jul 07 10:40	16°☾10'35	-1°00'-32
minimum elong	3211 Jun 18 17:43	28°II10'44	1°20'34	minimum elong	3219 Jul 07 10:41	16°☾10'35	1°00'33
max. Earth dist.	3211 Jun 19 08:48	28°II12'09	30.82477 AU	max. Earth dist.	3219 Jul 07 19:48	16°☾11'26	30.86221 AU
	3211 Aug 11 13:56	0°☾		retrograde	3219 Oct 21 21:14	18°☾43'32	
retrograde	3211 Oct 03 16:28	0°☾44'50		opposition	3220 Jan 08 08:07	17°☾18'55	-1°-3'-9
	3211 Nov 27 01:49	30°R II		min. Earth dist.	3220 Jan 07 23:19	17°☾19'33	28.86716 AU
opposition	3211 Dec 21 16:32	29°II19'56	-1°-25'00	direct	3220 Mar 26 09:20	15°☾54'29	
min. Earth dist.	3211 Dec 21 03:55	29°II20'50	28.82730 AU				
direct	3212 Mar 08 08:11	27°II55'56		conjunction	3220 Jul 09 00:51	18°☾25'10	0°-57'-35
	3212 Jun 08 15:11	0°☾		minimum elong	3220 Jul 09 00:51	18°☾25'10	0°57'36
conjunction	3212 Jun 20 08:03	0°☾26'12	-1°-18'-25	max. Earth dist.	3220 Jul 09 09:54	18°☾26'00	30.87163 AU
minimum elong	3212 Jun 20 08:04	0°☾26'12	1°18'27	retrograde	3220 Oct 23 08:39	20°☾57'59	
max. Earth dist.	3212 Jun 20 22:03	0°☾27'31	30.82832 AU	opposition	3221 Jan 09 18:57	19°☾33'29	0°-59'-56
retrograde	3212 Oct 05 05:32	3°☾00'10		min. Earth dist.	3221 Jan 09 11:44	19°☾33'59	28.87692 AU
opposition	3212 Dec 23 03:45	1°☾35'18	-1°-22'-40	direct	3221 Mar 28 20:34	18°☾09'02	
min. Earth dist.	3212 Dec 22 15:01	1°☾36'12	28.83040 AU	conjunction	3221 Jul 11 14:52	20°☾39'47	0°-54'-32
direct	3213 Mar 10 20:29	0°☾11'14		minimum elong	3221 Jul 11 14:52	20°☾39'47	0°54'33
conjunction	3213 Jun 22 22:07	2°☾41'33	-1°-16'-11	max. Earth dist.	3221 Jul 11 22:54	20°☾40'32	30.88170 AU
minimum elong	3213 Jun 22 22:08	2°☾41'33	1°16'13	retrograde	3221 Oct 25 22:17	23°☾12'29	
max. Earth dist.	3213 Jun 23 11:04	2°☾42'45	30.83116 AU	opposition	3222 Jan 12 05:38	21°☾48'04	0°-56'-38
retrograde	3213 Oct 07 17:04	5°☾15'23		min. Earth dist.	3222 Jan 11 22:18	21°☾48'35	28.88693 AU
opposition	3213 Dec 25 15:01	3°☾50'32	-1°-20'-13	direct	3222 Mar 31 08:39	20°☾23'37	
min. Earth dist.	3213 Dec 25 03:59	3°☾51'19	28.83318 AU	conjunction	3222 Jul 14 05:07	22°☾54'26	0°-51'-25
direct	3214 Mar 13 06:19	2°☾26'24		minimum elong	3222 Jul 14 05:07	22°☾54'26	0°51'26
conjunction	3214 Jun 25 12:22	4°☾56'45	-1°-13'-51	max. Earth dist.	3222 Jul 14 12:00	22°☾55'04	30.89151 AU
minimum elong	3214 Jun 25 12:22	4°☾56'45	1°13'52	retrograde	3222 Oct 28 09:31	25°☾26'59	
max. Earth dist.	3214 Jun 26 01:09	4°☾57'56	30.83408 AU	opposition	3223 Jan 14 16:23	24°☾02'39	0°-53'-15
retrograde	3214 Oct 10 04:58	7°☾30'26		min. Earth dist.	3223 Jan 14 11:02	24°☾03'02	28.89651 AU
opposition	3214 Dec 28 01:56	6°☾05'36	-1°-17'-39	direct	3223 Apr 02 18:25	22°☾38'11	
min. Earth dist.	3214 Dec 27 14:42	6°☾06'24	28.83615 AU	conjunction	3223 Jul 16 19:29	25°☾09'03	0°-48'-13
direct	3215 Mar 15 19:43	4°☾41'23		minimum elong	3223 Jul 16 19:30	25°☾09'03	0°48'13
conjunction	3215 Jun 28 02:27	7°☾11'46	-1°-11'-23	max. Earth dist.	3223 Jul 17 01:39	25°☾09'37	30.90074 AU
minimum elong	3215 Jun 28 02:27	7°☾11'46	1°11'24	retrograde	3223 Oct 30 20:51	27°☾41'27	
max. Earth dist.	3215 Jun 28 13:38	7°☾12'49	30.83736 AU	opposition	3224 Jan 17 03:04	26°☾17'11	0°-49'-48
retrograde	3215 Oct 12 17:34	9°☾45'19		min. Earth dist.	3224 Jan 16 21:51	26°☾17'33	28.90516 AU
opposition	3215 Dec 30 12:58	8°☾20'30	-1°-14'-58	direct	3224 Apr 04 07:44	24°☾52'40	
min. Earth dist.	3215 Dec 30 02:54	8°☾21'13	28.83985 AU	conjunction	3224 Jul 18 09:38	27°☾23'35	0°-44'-56
direct	3216 Mar 17 07:14	6°☾56'12		minimum elong	3224 Jul 18 09:38	27°☾23'35	0°44'58
conjunction	3216 Jun 29 16:38	9°☾26'39	-1°-8'-50	max. Earth dist.	3224 Jul 18 13:47	27°☾23'58	30.90893 AU
minimum elong	3216 Jun 29 16:38	9°☾26'39	1°08'51	retrograde	3224 Nov 01 08:24	29°☾55'48	
max. Earth dist.	3216 Jun 30 04:18	9°☾27'44	30.84152 AU	opposition	3225 Jan 18 13:46	28°☾31'36	0°-46'-16
retrograde	3216 Oct 14 05:21	12°☾00'02		min. Earth dist.	3225 Jan 18 10:04	28°☾31'51	28.91300 AU
opposition	3216 Dec 31 23:47	10°☾35'15	-1°-12'-10	direct	3225 Apr 06 18:24	27°☾07'01	
min. Earth dist.	3216 Dec 31 13:54	10°☾35'57	28.84449 AU	conjunction	3225 Jul 20 23:52	29°☾37'57	0°-41'-37
direct	3217 Mar 19 20:20	9°☾10'53		minimum elong	3225 Jul 20 23:52	29°☾37'57	0°41'37
conjunction	3217 Jul 02 06:34	11°☾41'22	-1°-6'-10	max. Earth dist.	3225 Jul 21 03:57	29°☾38'20	30.91648 AU
minimum elong	3217 Jul 02 06:35	11°☾41'22	1°06'11		3225 Jul 30 21:10	0°♂	
max. Earth dist.	3217 Jul 02 16:39	11°☾42'18	30.84693 AU	retrograde	3225 Nov 03 19:37	2°♂10'00	
retrograde	3217 Oct 16 19:09	14°☾14'37		opposition	3226 Jan 21 00:19	0°♂45'50	0°-42'-40
opposition	3218 Jan 03 10:38	12°☾49'52	-1°-9'-16	min. Earth dist.	3226 Jan 20 21:15	0°♂46'03	28.92019 AU
min. Earth dist.	3218 Jan 03 01:08	12°☾50'32	28.85068 AU		3226 Feb 18 11:46	30°R☾	
direct	3218 Mar 22 07:40	11°☾25'27		direct	3226 Apr 09 07:06	29°☾21'11	
					3226 May 28 04:31	0°♂	

conjunction	3226 Jul 23 13:49	1°Ω52'09	0°-38'-13	opposition	3234 Feb 07 11:03	18°Ω34'47	0°-12'-12
minimum elong	3226 Jul 23 13:49	1°Ω52'09	0°38'14	min. Earth dist.	3234 Feb 07 13:23	18°Ω34'37	29.00051 AU
max. Earth dist.	3226 Jul 23 15:51	1°Ω52'20	30.92362 AU	direct	3234 Apr 27 04:38	17°Ω09'58	
retrograde	3226 Nov 06 08:21	4°Ω24'01					
opposition	3227 Jan 23 10:50	2°Ω59'52	0°-39'-1	conjunction	3234 Aug 11 04:04	19°Ω41'16	0°-9'-36
min. Earth dist.	3227 Jan 23 08:35	3°Ω00'02	28.92729 AU	minimum elong	3234 Aug 11 04:04	19°Ω41'16	0°09'38
direct	3227 Apr 11 18:48	1°Ω35'09		behind sun begin	3234 Aug 10 22:40	19°Ω40'48	
				behind sun end	3234 Aug 11 09:28	19°Ω41'45	
conjunction	3227 Jul 26 03:57	4°Ω06'09	0°-34'-47	max. Earth dist.	3234 Aug 11 01:19	19°Ω41'02	31.00717 AU
minimum elong	3227 Jul 26 03:58	4°Ω06'09	0°34'47	retrograde	3234 Nov 24 03:57	22°Ω11'53	
max. Earth dist.	3227 Jul 26 06:13	4°Ω06'21	30.93073 AU	opposition	3235 Feb 09 21:22	20°Ω48'24	0°-8'-15
retrograde	3227 Nov 08 19:44	6°Ω37'49		min. Earth dist.	3235 Feb 10 00:27	20°Ω48'10	29.01366 AU
opposition	3228 Jan 25 21:12	5°Ω13'42	0°-35'-19	direct	3235 Apr 29 16:17	19°Ω23'35	
min. Earth dist.	3228 Jan 25 20:09	5°Ω13'47	28.93451 AU				
direct	3228 Apr 13 08:22	3°Ω48'56		conjunction	3235 Aug 13 17:45	21°Ω54'56	0°-5'-56
				minimum elong	3235 Aug 13 17:45	21°Ω54'56	0°05'56
conjunction	3228 Jul 27 17:48	6°Ω19'57	0°-31'-17	behind sun begin	3235 Aug 13 11:28	21°Ω54'23	
minimum elong	3228 Jul 27 17:48	6°Ω19'57	0°31'19	behind sun end	3235 Aug 14 00:02	21°Ω55'30	
max. Earth dist.	3228 Jul 27 18:19	6°Ω20'00	30.93835 AU	max. Earth dist.	3235 Aug 13 12:47	21°Ω54'30	31.01996 AU
retrograde	3228 Nov 10 08:31	8°Ω51'26		retrograde	3235 Nov 26 15:50	24°Ω25'24	
opposition	3229 Jan 27 07:34	7°Ω27'22	0°-31'-33	opposition	3236 Feb 12 07:40	23°Ω02'00	0°-4'-18
min. Earth dist.	3229 Jan 27 06:21	7°Ω27'28	28.94255 AU	min. Earth dist.	3236 Feb 12 11:39	23°Ω01'43	29.02606 AU
direct	3229 Apr 15 20:51	6°Ω02'33		direct	3236 May 01 03:43	21°Ω37'11	
conjunction	3229 Jul 30 07:31	8°Ω33'36	0°-27'-45	conjunction	3236 Aug 15 07:34	24°Ω08'35	0°-2'-13
minimum elong	3229 Jul 30 07:31	8°Ω33'36	0°27'46	minimum elong	3236 Aug 15 07:34	24°Ω08'35	0°02'15
max. Earth dist.	3229 Jul 30 08:06	8°Ω33'39	30.94682 AU	behind sun begin	3236 Aug 15 00:58	24°Ω08'00	
retrograde	3229 Nov 12 19:30	11°Ω04'55		behind sun end	3236 Aug 15 14:09	24°Ω09'10	
opposition	3230 Jan 29 18:00	9°Ω40'54	0°-27'-45	max. Earth dist.	3236 Aug 15 02:36	24°Ω08'09	31.03178 AU
min. Earth dist.	3230 Jan 29 18:11	9°Ω40'53	28.95164 AU	retrograde	3236 Nov 28 02:30	26°Ω38'53	
direct	3230 Apr 18 08:34	8°Ω16'03		opposition	3237 Feb 13 18:07	25°Ω15'32	0°00'-20
				min. Earth dist.	3237 Feb 13 23:30	25°Ω15'10	29.03732 AU
conjunction	3230 Aug 01 21:15	10°Ω47'07	0°-24'-11	asc. node	3237 Mar 18 16:15	24°Ω23'46	
minimum elong	3230 Aug 01 21:15	10°Ω47'07	0°24'13	direct	3237 May 03 17:00	23°Ω50'43	
max. Earth dist.	3230 Aug 01 20:52	10°Ω47'05	30.95668 AU				
retrograde	3230 Nov 15 08:43	13°Ω18'16		conjunction	3237 Aug 17 20:57	26°Ω22'06	0°01'35
opposition	3231 Feb 01 04:09	11°Ω54'20	0°-23'-55	minimum elong	3237 Aug 17 20:58	26°Ω22'06	0°01'35
min. Earth dist.	3231 Feb 01 03:54	11°Ω54'21	28.96214 AU	behind sun begin	3237 Aug 17 14:22	26°Ω21'31	
direct	3231 Apr 20 20:54	10°Ω29'28		behind sun end	3237 Aug 18 03:33	26°Ω22'41	
				max. Earth dist.	3237 Aug 17 13:54	26°Ω21'28	31.04259 AU
conjunction	3231 Aug 04 11:02	13°Ω00'36	0°-20'-35	retrograde	3237 Nov 30 14:53	28°Ω52'14	
minimum elong	3231 Aug 04 11:02	13°Ω00'36	0°20'36	opposition	3238 Feb 16 04:23	27°Ω28'56	0°03'36
max. Earth dist.	3231 Aug 04 10:03	13°Ω00'30	30.96785 AU	min. Earth dist.	3238 Feb 16 09:56	27°Ω28'33	29.04764 AU
	3231 Oct 04 21:42	15°Ω		direct	3238 May 06 05:19	26°Ω04'04	
retrograde	3231 Nov 17 19:17	15°Ω31'36					
	3232 Jan 01 08:18	15°℞Ω		conjunction	3238 Aug 20 10:37	28°Ω35'27	0°05'18
opposition	3232 Feb 03 14:33	14°Ω07'46	0°-20'-2	minimum elong	3238 Aug 20 10:37	28°Ω35'27	0°05'17
min. Earth dist.	3232 Feb 03 15:48	14°Ω07'41	28.97404 AU	behind sun begin	3238 Aug 20 04:14	28°Ω34'54	
direct	3232 Apr 22 06:37	12°Ω42'55		behind sun end	3238 Aug 20 17:00	28°Ω36'01	
	3232 Jul 30 16:56	15°Ω		max. Earth dist.	3238 Aug 20 03:13	28°Ω34'48	31.05240 AU
conjunction	3232 Aug 06 00:41	15°Ω14'05	0°-16'-56		3238 Sep 29 15:50	0°℞	
minimum elong	3232 Aug 06 00:41	15°Ω14'05	0°16'58	retrograde	3238 Dec 03 01:47	1°℞05'23	
max. Earth dist.	3232 Aug 05 23:27	15°Ω13'58	30.98041 AU		3239 Feb 07 22:57	30°℞Ω	
retrograde	3232 Nov 19 05:54	17°Ω44'57		opposition	3239 Feb 18 14:37	29°Ω42'08	0°07'33
opposition	3233 Feb 05 00:45	16°Ω21'14	0°-16'-8	min. Earth dist.	3239 Feb 18 22:03	29°Ω41'37	29.05710 AU
min. Earth dist.	3233 Feb 05 01:47	16°Ω21'10	28.98697 AU	direct	3239 May 08 17:50	28°Ω17'13	
	3233 Apr 10 01:40	15°℞Ω			3239 Jul 31 18:48	0°℞	
direct	3233 Apr 24 19:19	14°Ω56'24		conjunction	3239 Aug 23 00:04	0°℞48'35	0°08'58
	3233 May 09 09:41	15°Ω		minimum elong	3239 Aug 23 00:04	0°℞48'35	0°08'58
				behind sun begin	3239 Aug 22 18:28	0°℞48'06	
conjunction	3233 Aug 08 14:18	17°Ω27'38	0°-13'-17	behind sun end	3239 Aug 23 05:40	0°℞49'05	
minimum elong	3233 Aug 08 14:18	17°Ω27'38	0°13'17	max. Earth dist.	3239 Aug 22 15:14	0°℞47'47	31.06167 AU
behind sun begin	3233 Aug 08 10:37	17°Ω27'19		retrograde	3239 Dec 05 14:29	3°℞18'19	
behind sun end	3233 Aug 08 17:58	17°Ω27'58		opposition	3240 Feb 21 00:47	1°℞55'06	0°11'28
max. Earth dist.	3233 Aug 08 11:34	17°Ω27'24	30.99370 AU	min. Earth dist.	3240 Feb 21 08:03	1°℞54'35	29.06616 AU
retrograde	3233 Nov 21 17:11	19°Ω58'23		direct	3240 May 10 07:32	0°℞30'07	

conjunction	3240 Aug 24 13:16	3° $\mathring{\text{M}}$ 01'28	0°12'37	minimum elong	3248 Sep 11 20:29	20° $\mathring{\text{M}}$ 40'06	0°40'43
minimum elong	3240 Aug 24 13:16	3° $\mathring{\text{M}}$ 01'28	0°12'37	max. Earth dist.	3248 Sep 11 05:38	20° $\mathring{\text{M}}$ 38'43	31.16309 AU
behind sun begin	3240 Aug 24 09:10	3° $\mathring{\text{M}}$ 01'07		retrograde	3248 Dec 24 14:56	23° $\mathring{\text{M}}$ 08'32	
behind sun end	3240 Aug 24 17:22	3° $\mathring{\text{M}}$ 01'50		opposition	3249 Mar 11 20:30	21° $\mathring{\text{M}}$ 45'56	0°45'14
max. Earth dist.	3240 Aug 24 03:47	3° $\mathring{\text{M}}$ 00'37	31.07059 AU	min. Earth dist.	3249 Mar 12 09:18	21° $\mathring{\text{M}}$ 45'02	29.16866 AU
retrograde	3240 Dec 07 00:19	5° $\mathring{\text{M}}$ 31'00		direct	3249 May 30 17:07	20° $\mathring{\text{M}}$ 20'58	
opposition	3241 Feb 22 11:03	4° $\mathring{\text{M}}$ 07'49	0°15'23				
min. Earth dist.	3241 Feb 22 19:55	4° $\mathring{\text{M}}$ 07'11	29.07526 AU	conjunction	3249 Sep 14 09:11	22° $\mathring{\text{M}}$ 52'25	0°44'01
direct	3241 May 12 18:41	2° $\mathring{\text{M}}$ 42'47		minimum elong	3249 Sep 14 09:11	22° $\mathring{\text{M}}$ 52'25	0°44'01
				max. Earth dist.	3249 Sep 13 17:33	22° $\mathring{\text{M}}$ 50'59	31.17336 AU
conjunction	3241 Aug 27 02:26	5° $\mathring{\text{M}}$ 14'07	0°16'15	retrograde	3249 Dec 27 00:55	25° $\mathring{\text{M}}$ 20'44	
minimum elong	3241 Aug 27 02:26	5° $\mathring{\text{M}}$ 14'07	0°16'16	opposition	3250 Mar 14 06:47	23° $\mathring{\text{M}}$ 58'11	0°48'43
max. Earth dist.	3241 Aug 26 16:38	5° $\mathring{\text{M}}$ 13'13	31.07990 AU	min. Earth dist.	3250 Mar 14 21:22	23° $\mathring{\text{M}}$ 57'10	29.17842 AU
retrograde	3241 Dec 09 10:37	7° $\mathring{\text{M}}$ 43'27		direct	3250 Jun 02 04:20	22° $\mathring{\text{M}}$ 33'13	
opposition	3242 Feb 24 21:03	6° $\mathring{\text{M}}$ 20'17	0°19'15				
min. Earth dist.	3242 Feb 25 05:43	6° $\mathring{\text{M}}$ 19'41	29.08482 AU	conjunction	3250 Sep 16 21:50	25° $\mathring{\text{M}}$ 04'40	0°47'14
direct	3242 May 15 07:37	4° $\mathring{\text{M}}$ 55'13		minimum elong	3250 Sep 16 21:50	25° $\mathring{\text{M}}$ 04'40	0°47'13
				max. Earth dist.	3250 Sep 16 05:35	25° $\mathring{\text{M}}$ 03'10	31.18249 AU
conjunction	3242 Aug 29 15:28	7° $\mathring{\text{M}}$ 26'32	0°19'52	retrograde	3250 Dec 29 11:20	27° $\mathring{\text{M}}$ 32'49	
minimum elong	3242 Aug 29 15:28	7° $\mathring{\text{M}}$ 26'32	0°19'51	opposition	3251 Mar 16 17:04	26° $\mathring{\text{M}}$ 10'20	0°52'07
max. Earth dist.	3242 Aug 29 04:23	7° $\mathring{\text{M}}$ 25'31	31.08982 AU	min. Earth dist.	3251 Mar 17 07:41	26° $\mathring{\text{M}}$ 09'19	29.18688 AU
retrograde	3242 Dec 11 21:17	9° $\mathring{\text{M}}$ 55'41		direct	3251 Jun 04 17:39	24° $\mathring{\text{M}}$ 45'21	
opposition	3243 Feb 27 07:16	8° $\mathring{\text{M}}$ 32'35	0°23'06				
min. Earth dist.	3243 Feb 27 16:50	8° $\mathring{\text{M}}$ 31'54	29.09533 AU	conjunction	3251 Sep 19 10:16	27° $\mathring{\text{M}}$ 16'46	0°50'23
direct	3243 May 17 17:32	7° $\mathring{\text{M}}$ 07'29		minimum elong	3251 Sep 19 10:15	27° $\mathring{\text{M}}$ 16'46	0°50'24
				max. Earth dist.	3251 Sep 18 16:34	27° $\mathring{\text{M}}$ 15'08	31.19039 AU
conjunction	3243 Sep 01 04:31	9° $\mathring{\text{M}}$ 38'47	0°23'27	retrograde	3251 Dec 31 22:00	29° $\mathring{\text{M}}$ 44'47	
minimum elong	3243 Sep 01 04:31	9° $\mathring{\text{M}}$ 38'47	0°23'27	opposition	3252 Mar 18 03:21	28° $\mathring{\text{M}}$ 22'19	0°55'27
max. Earth dist.	3243 Aug 31 17:48	9° $\mathring{\text{M}}$ 37'48	31.10081 AU	min. Earth dist.	3252 Mar 18 19:02	28° $\mathring{\text{M}}$ 21'13	29.19450 AU
retrograde	3243 Dec 14 06:39	12° $\mathring{\text{M}}$ 07'47		direct	3252 Jun 06 04:00	26° $\mathring{\text{M}}$ 57'18	
opposition	3244 Feb 29 17:23	10° $\mathring{\text{M}}$ 44'45	0°26'55				
min. Earth dist.	3244 Mar 01 03:14	10° $\mathring{\text{M}}$ 44'03	29.10680 AU	conjunction	3252 Sep 20 22:38	29° $\mathring{\text{M}}$ 28'40	0°53'27
direct	3244 May 19 05:21	9° $\mathring{\text{M}}$ 19'39		minimum elong	3252 Sep 20 22:37	29° $\mathring{\text{M}}$ 28'40	0°53'27
				max. Earth dist.	3252 Sep 20 05:11	29° $\mathring{\text{M}}$ 27'03	31.19767 AU
conjunction	3244 Sep 02 17:20	11° $\mathring{\text{M}}$ 50'58	0°26'59		3252 Oct 05 02:52	0° $\mathring{\text{A}}$	
minimum elong	3244 Sep 02 17:20	11° $\mathring{\text{M}}$ 50'58	0°26'59	retrograde	3253 Jan 02 06:29	1° $\mathring{\text{A}}$ 56'32	
max. Earth dist.	3244 Sep 02 05:05	11° $\mathring{\text{M}}$ 49'50	31.11288 AU	opposition	3253 Mar 20 13:36	0° $\mathring{\text{A}}$ 34'05	0°58'41
retrograde	3244 Dec 15 17:35	14° $\mathring{\text{M}}$ 19'51		min. Earth dist.	3253 Mar 21 05:45	0° $\mathring{\text{A}}$ 32'58	29.20155 AU
opposition	3245 Mar 03 03:33	12° $\mathring{\text{M}}$ 56'53	0°30'41		3253 Apr 10 12:26	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$	
min. Earth dist.	3245 Mar 03 13:38	12° $\mathring{\text{M}}$ 56'11	29.11945 AU	direct	3253 Jun 08 16:22	29° $\mathring{\text{M}}$ 09'02	
direct	3245 May 21 15:56	11° $\mathring{\text{M}}$ 31'49			3253 Aug 05 02:22	0° $\mathring{\text{A}}$	
conjunction	3245 Sep 05 06:09	14° $\mathring{\text{M}}$ 03'10	0°30'30	conjunction	3253 Sep 23 10:37	1° $\mathring{\text{A}}$ 40'21	0°56'26
minimum elong	3245 Sep 05 06:09	14° $\mathring{\text{M}}$ 03'10	0°30'30	minimum elong	3253 Sep 23 10:37	1° $\mathring{\text{A}}$ 40'21	0°56'27
max. Earth dist.	3245 Sep 04 18:33	14° $\mathring{\text{M}}$ 02'06	31.12582 AU	max. Earth dist.	3253 Sep 22 15:40	1° $\mathring{\text{A}}$ 38'36	31.20467 AU
retrograde	3245 Dec 18 03:23	16° $\mathring{\text{M}}$ 31'56		retrograde	3254 Jan 04 16:05	4° $\mathring{\text{A}}$ 08'05	
opposition	3246 Mar 05 13:47	15° $\mathring{\text{M}}$ 09'04	0°34'24	opposition	3254 Mar 22 23:48	2° $\mathring{\text{A}}$ 45'39	1°01'50
min. Earth dist.	3246 Mar 06 01:02	15° $\mathring{\text{M}}$ 08'17	29.13251 AU	min. Earth dist.	3254 Mar 23 16:08	2° $\mathring{\text{A}}$ 44'30	29.20870 AU
direct	3246 May 24 03:55	13° $\mathring{\text{M}}$ 44'02		direct	3254 Jun 11 03:09	1° $\mathring{\text{A}}$ 20'33	
conjunction	3246 Sep 07 18:57	16° $\mathring{\text{M}}$ 15'25	0°33'58	conjunction	3254 Sep 25 22:45	3° $\mathring{\text{A}}$ 51'50	0°59'21
minimum elong	3246 Sep 07 18:57	16° $\mathring{\text{M}}$ 15'25	0°33'57	minimum elong	3254 Sep 25 22:45	3° $\mathring{\text{A}}$ 51'50	0°59'20
max. Earth dist.	3246 Sep 07 05:35	16° $\mathring{\text{M}}$ 14'11	31.13894 AU	max. Earth dist.	3254 Sep 25 04:37	3° $\mathring{\text{A}}$ 50'09	31.21189 AU
retrograde	3246 Dec 20 15:31	18° $\mathring{\text{M}}$ 44'05		retrograde	3255 Jan 07 00:27	6° $\mathring{\text{A}}$ 19'25	
opposition	3247 Mar 07 23:49	17° $\mathring{\text{M}}$ 21'19	0°38'05	opposition	3255 Mar 25 10:02	4° $\mathring{\text{A}}$ 57'00	1°04'53
min. Earth dist.	3247 Mar 08 11:02	17° $\mathring{\text{M}}$ 20'32	29.14550 AU	min. Earth dist.	3255 Mar 26 03:15	4° $\mathring{\text{A}}$ 55'48	29.21626 AU
direct	3247 May 26 15:15	15° $\mathring{\text{M}}$ 56'19		direct	3255 Jun 13 14:32	3° $\mathring{\text{A}}$ 31'53	
conjunction	3247 Sep 10 07:53	18° $\mathring{\text{M}}$ 27'44	0°37'22	conjunction	3255 Sep 28 10:36	6° $\mathring{\text{A}}$ 03'06	1°02'10
minimum elong	3247 Sep 10 07:53	18° $\mathring{\text{M}}$ 27'44	0°37'23	minimum elong	3255 Sep 28 10:36	6° $\mathring{\text{A}}$ 03'06	1°02'10
max. Earth dist.	3247 Sep 09 18:25	18° $\mathring{\text{M}}$ 26'30	31.15147 AU	max. Earth dist.	3255 Sep 27 15:15	6° $\mathring{\text{A}}$ 01'19	31.21991 AU
retrograde	3247 Dec 23 02:20	20° $\mathring{\text{M}}$ 56'18		retrograde	3256 Jan 09 11:32	8° $\mathring{\text{A}}$ 30'35	
opposition	3248 Mar 09 10:14	19° $\mathring{\text{M}}$ 33'38	0°41'42	opposition	3256 Mar 26 20:17	7° $\mathring{\text{A}}$ 08'11	1°07'51
min. Earth dist.	3248 Mar 09 23:12	19° $\mathring{\text{M}}$ 32'43	29.15766 AU	min. Earth dist.	3256 Mar 27 12:44	7° $\mathring{\text{A}}$ 07'02	29.22486 AU
direct	3248 May 28 03:29	18° $\mathring{\text{M}}$ 08'39		direct	3256 Jun 15 01:17	5° $\mathring{\text{A}}$ 43'03	
conjunction	3248 Sep 11 20:29	20° $\mathring{\text{M}}$ 40'06	0°40'43	conjunction	3256 Sep 29 22:20	8° $\mathring{\text{A}}$ 14'15	1°04'54

minimum elong	3256 Sep 29 22:20	8°♄14'15	1°04'53	opposition	3265 Apr 15 18:26	26°♄47'23	1°29'35
max. Earth dist.	3256 Sep 29 03:39	8°♄12'31	31.22897 AU	min. Earth dist.	3265 Apr 16 14:19	26°♄46'01	29.30083 AU
retrograde	3257 Jan 10 21:12	10°♄41'38		direct	3265 Jul 05 11:10	25°♄22'26	
opposition	3257 Mar 29 06:40	9°♄19'16	1°10'43	max. Earth dist.	3265 Oct 19 07:33	27°♄51'18	31.30209 AU
min. Earth dist.	3257 Mar 30 00:11	9°♄18'03	29.23452 AU				
direct	3257 Jun 17 13:33	7°♄54'10		conjunction	3265 Oct 20 05:38	27°♄53'21	1°24'45
				minimum elong	3265 Oct 20 05:38	27°♄53'21	1°24'46
conjunction	3257 Oct 02 10:01	10°♄25'21	1°07'31		3265 Dec 27 08:31	0°♄	
minimum elong	3257 Oct 02 10:00	10°♄25'21	1°07'32	retrograde	3266 Jan 30 15:26	0°♄19'59	
max. Earth dist.	3257 Oct 01 14:39	10°♄23'33	31.23915 AU		3266 Mar 06 17:50	30°♄	
retrograde	3258 Jan 13 08:51	12°♄52'37		opposition	3266 Apr 18 04:59	28°♄57'58	1°31'24
opposition	3258 Mar 31 16:45	11°♄30'20	1°13'28	min. Earth dist.	3266 Apr 19 02:06	28°♄56'31	29.30510 AU
min. Earth dist.	3258 Apr 01 09:37	11°♄29'09	29.24500 AU	direct	3266 Jul 07 23:12	27°♄33'01	
direct	3258 Jun 20 02:34	10°♄05'16			3266 Oct 20 22:58	0°♄	
conjunction	3258 Oct 04 21:46	12°♄36'27	1°10'03	conjunction	3266 Oct 22 16:33	0°♄03'52	1°26'23
minimum elong	3258 Oct 04 21:46	12°♄36'27	1°10'03	minimum elong	3266 Oct 22 16:33	0°♄03'52	1°26'23
max. Earth dist.	3258 Oct 04 02:15	12°♄34'38	31.24976 AU	max. Earth dist.	3266 Oct 21 17:59	0°♄01'46	31.30637 AU
retrograde	3259 Jan 15 19:00	15°♄03'39		retrograde	3267 Feb 02 02:27	2°♄30'25	
opposition	3259 Apr 03 03:12	13°♄41'25	1°16'08	opposition	3267 Apr 20 15:33	1°♄08'24	1°33'05
min. Earth dist.	3259 Apr 03 21:21	13°♄40'10	29.25575 AU	min. Earth dist.	3267 Apr 21 11:43	1°♄07'01	29.30946 AU
direct	3259 Jun 22 13:27	12°♄16'24			3267 Jun 07 19:00	30°♄	
				direct	3267 Jul 10 12:04	29°♄43'26	
conjunction	3259 Oct 07 09:23	14°♄47'34	1°12'29		3267 Aug 11 17:35	0°♄	
minimum elong	3259 Oct 07 09:22	14°♄47'34	1°12'30	max. Earth dist.	3267 Oct 24 04:57	2°♄12'10	31.31090 AU
max. Earth dist.	3259 Oct 06 13:49	14°♄45'46	31.26034 AU				
retrograde	3260 Jan 18 05:40	17°♄14'41		conjunction	3267 Oct 25 03:17	2°♄14'14	1°27'54
opposition	3260 Apr 04 13:37	15°♄52'32	1°18'40	minimum elong	3267 Oct 25 03:17	2°♄14'14	1°27'54
min. Earth dist.	3260 Apr 05 07:32	15°♄51'18	29.26600 AU	retrograde	3268 Feb 04 12:13	4°♄40'45	
direct	3260 Jun 24 02:48	14°♄27'33		opposition	3268 Apr 22 02:21	3°♄18'44	1°34'37
				min. Earth dist.	3268 Apr 22 23:11	3°♄17'18	29.31453 AU
conjunction	3260 Oct 08 20:57	16°♄58'43	1°14'49	direct	3268 Jul 11 22:51	1°♄53'47	
minimum elong	3260 Oct 08 20:57	16°♄58'43	1°14'49				
max. Earth dist.	3260 Oct 08 00:14	16°♄56'48	31.27014 AU	conjunction	3268 Oct 26 14:00	4°♄24'32	1°29'17
retrograde	3261 Jan 19 16:49	19°♄25'46		minimum elong	3268 Oct 26 14:00	4°♄24'32	1°29'16
opposition	3261 Apr 07 00:07	18°♄03'39	1°21'06	max. Earth dist.	3268 Oct 25 16:18	4°♄22'31	31.31645 AU
min. Earth dist.	3261 Apr 07 18:50	18°♄02'21	29.27548 AU	retrograde	3269 Feb 05 22:32	6°♄51'00	
direct	3261 Jun 26 13:39	16°♄38'42		opposition	3269 Apr 24 12:56	5°♄29'01	1°36'02
				min. Earth dist.	3269 Apr 25 08:56	5°♄27'38	29.32054 AU
conjunction	3261 Oct 11 08:31	19°♄09'50	1°17'02	direct	3269 Jul 14 12:16	4°♄04'06	
minimum elong	3261 Oct 11 08:31	19°♄09'50	1°17'02	max. Earth dist.	3269 Oct 28 02:23	6°♄32'46	31.32294 AU
max. Earth dist.	3261 Oct 10 12:09	19°♄07'57	31.27896 AU				
retrograde	3262 Jan 22 01:22	21°♄36'48		conjunction	3269 Oct 29 00:35	6°♄34'50	1°30'32
opposition	3262 Apr 09 10:42	20°♄14'44	1°23'24	minimum elong	3269 Oct 29 00:35	6°♄34'50	1°30'32
min. Earth dist.	3262 Apr 10 05:58	20°♄13'24	29.28358 AU	retrograde	3270 Feb 08 09:57	9°♄01'17	
direct	3262 Jun 29 02:22	18°♄49'48		opposition	3270 Apr 26 23:41	7°♄39'20	1°37'18
				min. Earth dist.	3270 Apr 27 19:46	7°♄37'57	29.32752 AU
conjunction	3262 Oct 13 19:57	21°♄20'53	1°19'08	direct	3270 Jul 16 23:25	6°♄14'29	
minimum elong	3262 Oct 13 19:57	21°♄20'53	1°19'07				
max. Earth dist.	3262 Oct 12 21:57	21°♄18'51	31.28638 AU	conjunction	3270 Oct 31 11:15	8°♄45'12	1°31'39
retrograde	3263 Jan 24 11:17	23°♄47'46		minimum elong	3270 Oct 31 11:15	8°♄45'12	1°31'39
opposition	3263 Apr 11 21:11	22°♄25'45	1°25'35	max. Earth dist.	3270 Oct 30 14:07	8°♄43'14	31.33018 AU
min. Earth dist.	3263 Apr 12 16:38	22°♄24'24	29.29046 AU	retrograde	3271 Feb 10 18:20	11°♄11'38	
direct	3263 Jul 01 12:59	21°♄00'49		opposition	3271 Apr 29 10:29	9°♄49'46	1°38'26
max. Earth dist.	3263 Oct 15 10:07	23°♄29'53	31.29256 AU	min. Earth dist.	3271 Apr 30 06:38	9°♄48'23	29.33481 AU
				direct	3271 Jul 19 11:53	8°♄25'00	
conjunction	3263 Oct 16 07:27	23°♄31'51	1°21'08	conjunction	3271 Nov 02 21:44	10°♄55'41	1°32'39
minimum elong	3263 Oct 16 07:26	23°♄31'51	1°21'08	minimum elong	3271 Nov 02 21:44	10°♄55'41	1°32'40
retrograde	3264 Jan 26 19:39	25°♄58'39		max. Earth dist.	3271 Nov 01 23:38	10°♄53'38	31.33753 AU
opposition	3264 Apr 13 07:55	24°♄36'38	1°27'39	retrograde	3272 Feb 13 04:26	13°♄22'07	
min. Earth dist.	3264 Apr 14 04:25	24°♄35'13	29.29606 AU	opposition	3272 Apr 30 21:23	12°♄00'18	1°39'25
direct	3264 Jul 03 00:14	23°♄11'42		min. Earth dist.	3272 May 01 17:08	11°♄58'57	29.34209 AU
				direct	3272 Jul 20 22:14	10°♄35'36	
conjunction	3264 Oct 17 18:27	25°♄42'41	1°23'00	max. Earth dist.	3272 Nov 03 11:16	13°♄04'19	31.34442 AU
minimum elong	3264 Oct 17 18:27	25°♄42'41	1°22'59				
max. Earth dist.	3264 Oct 16 19:52	25°♄40'35	31.29771 AU	conjunction	3272 Nov 04 08:14	13°♄06'16	1°33'30
retrograde	3265 Jan 28 06:17	28°♄09'24					

minimum elong	3272 Nov 04 08:14	13° M 06'16	1°33'30	direct	3280 Aug 07 20:39	27° M 59'18	
	3273 Jan 01 07:35	15° M			3280 Nov 08 13:19	0° ♂	
retrograde	3273 Feb 14 13:06	15° M 32'43					
	3273 Apr 01 08:24	15° R M		conjunction	3280 Nov 21 17:58	0° ♂ 29'23	1°35'32
opposition	3273 May 03 08:28	14° M 10'56	1°40'16	minimum elong	3280 Nov 21 17:58	0° ♂ 29'23	1°35'31
min. Earth dist.	3273 May 04 05:06	14° M 09'32	29.34853 AU	max. Earth dist.	3280 Nov 20 20:35	0° ♂ 27'23	31.35783 AU
direct	3273 Jul 23 09:03	12° M 46'18		retrograde	3281 Mar 03 21:52	2° ♂ 55'42	
	3273 Oct 30 04:46	15° M		opposition	3281 May 21 02:06	1° ♂ 33'47	1°41'52
				min. Earth dist.	3281 May 21 21:18	1° ♂ 32'29	29.35900 AU
conjunction	3273 Nov 06 18:42	15° M 16'55	1°34'14	direct	3281 Aug 10 07:52	0° ♂ 09'12	
minimum elong	3273 Nov 06 18:42	15° M 16'55	1°34'14	max. Earth dist.	3281 Nov 23 08:04	2° ♂ 37'23	31.35820 AU
max. Earth dist.	3273 Nov 05 20:40	15° M 14'52	31.35033 AU				
retrograde	3274 Feb 16 23:43	17° M 43'22		conjunction	3281 Nov 24 03:52	2° ♂ 39'14	1°35'11
opposition	3274 May 05 19:21	16° M 21'38	1°40'58	minimum elong	3281 Nov 24 03:52	2° ♂ 39'14	1°35'11
min. Earth dist.	3274 May 06 15:14	16° M 20'16	29.35380 AU	retrograde	3282 Mar 06 06:27	5° ♂ 05'34	
	3274 Jul 12 03:41	15° R M		opposition	3282 May 23 13:25	3° ♂ 43'40	1°41'25
direct	3274 Jul 25 19:49	14° M 57'01		min. Earth dist.	3282 May 24 08:55	3° ♂ 42'20	29.35971 AU
	3274 Aug 08 10:37	15° M		direct	3282 Aug 12 19:14	2° ♂ 19'08	
max. Earth dist.	3274 Nov 08 07:43	17° M 25'36	31.35480 AU				
				conjunction	3282 Nov 26 13:34	4° ♂ 49'07	1°34'41
conjunction	3274 Nov 09 05:18	17° M 27'36	1°34'49	minimum elong	3282 Nov 26 13:34	4° ♂ 49'07	1°34'41
minimum elong	3274 Nov 09 05:18	17° M 27'36	1°34'49	max. Earth dist.	3282 Nov 25 17:31	4° ♂ 47'14	31.35937 AU
retrograde	3275 Feb 19 08:49	19° M 54'02		retrograde	3283 Mar 08 17:02	7° ♂ 15'30	
opposition	3275 May 08 06:39	18° M 32'19	1°41'32	opposition	3283 May 26 00:50	5° ♂ 53'37	1°40'49
min. Earth dist.	3275 May 09 03:42	18° M 30'52	29.35758 AU	min. Earth dist.	3283 May 26 18:49	5° ♂ 52'23	29.36106 AU
direct	3275 Jul 28 07:11	17° M 07'44		direct	3283 Aug 15 06:02	4° ♂ 29'09	
conjunction	3275 Nov 11 15:36	19° M 38'15	1°35'17	conjunction	3283 Nov 28 23:13	6° ♂ 59'06	1°34'03
minimum elong	3275 Nov 11 15:36	19° M 38'15	1°35'17	minimum elong	3283 Nov 28 23:13	6° ♂ 59'06	1°34'04
max. Earth dist.	3275 Nov 10 17:35	19° M 36'12	31.35785 AU	max. Earth dist.	3283 Nov 28 04:14	6° ♂ 57'19	31.36080 AU
retrograde	3276 Feb 21 19:33	22° M 04'40		retrograde	3284 Mar 10 02:24	9° ♂ 25'34	
opposition	3276 May 09 17:50	20° M 42'56	1°41'57	opposition	3284 May 27 12:29	8° ♂ 03'42	1°40'04
min. Earth dist.	3276 May 10 14:01	20° M 41'33	29.35980 AU	min. Earth dist.	3284 May 28 07:05	8° ♂ 02'26	29.36251 AU
direct	3276 Jul 29 19:09	19° M 18'22		direct	3284 Aug 16 16:25	6° ♂ 39'19	
max. Earth dist.	3276 Nov 12 03:49	21° M 46'45	31.35931 AU				
				conjunction	3284 Nov 30 08:53	9° ♂ 09'14	1°33'17
conjunction	3276 Nov 13 01:59	21° M 48'48	1°35'36	minimum elong	3284 Nov 30 08:53	9° ♂ 09'14	1°33'18
minimum elong	3276 Nov 13 01:59	21° M 48'48	1°35'36	max. Earth dist.	3284 Nov 29 14:07	9° ♂ 07'28	31.36217 AU
retrograde	3277 Feb 23 05:44	24° M 15'12		retrograde	3285 Mar 12 13:17	11° ♂ 35'46	
opposition	3277 May 12 05:00	22° M 53'26	1°42'13	opposition	3285 May 29 23:53	10° ♂ 13'56	1°39'11
min. Earth dist.	3277 May 13 02:10	22° M 52'00	29.36070 AU	min. Earth dist.	3285 May 30 17:18	10° ♂ 12'45	29.36350 AU
direct	3277 Aug 01 05:50	21° M 28'52		direct	3285 Aug 19 03:16	8° ♂ 49'37	
conjunction	3277 Nov 15 12:15	23° M 59'13	1°35'47	conjunction	3285 Dec 02 18:38	11° ♂ 19'31	1°32'24
minimum elong	3277 Nov 15 12:15	23° M 59'13	1°35'48	minimum elong	3285 Dec 02 18:38	11° ♂ 19'31	1°32'24
max. Earth dist.	3277 Nov 14 14:35	23° M 57'12	31.35963 AU	max. Earth dist.	3285 Dec 01 23:57	11° ♂ 17'46	31.36273 AU
retrograde	3278 Feb 25 16:06	26° M 25'34		retrograde	3286 Mar 15 00:15	13° ♂ 46'09	
opposition	3278 May 14 16:13	25° M 03'46	1°42'21	opposition	3286 Jun 01 11:40	12° ♂ 24'20	1°38'09
min. Earth dist.	3278 May 15 12:46	25° M 02'22	29.36040 AU	min. Earth dist.	3286 Jun 02 05:43	12° ♂ 23'06	29.36361 AU
direct	3278 Aug 03 20:01	23° M 39'11		direct	3286 Aug 21 13:16	11° ♂ 00'04	
				max. Earth dist.	3286 Dec 04 10:31	13° ♂ 28'16	31.36223 AU
conjunction	3278 Nov 17 22:17	26° M 09'27	1°35'50				
minimum elong	3278 Nov 17 22:17	26° M 09'27	1°35'50	conjunction	3286 Dec 05 04:20	13° ♂ 29'56	1°31'22
max. Earth dist.	3278 Nov 17 00:02	26° M 07'22	31.35897 AU	minimum elong	3286 Dec 05 04:20	13° ♂ 29'56	1°31'21
retrograde	3279 Feb 28 03:22	28° M 35'46		retrograde	3287 Mar 17 11:20	15° ♂ 56'38	
opposition	3279 May 17 03:28	27° M 13'55	1°42'20	opposition	3287 Jun 03 23:29	14° ♂ 34'49	1°36'59
min. Earth dist.	3279 May 17 23:59	27° M 12'31	29.35965 AU	min. Earth dist.	3287 Jun 04 16:45	14° ♂ 33'39	29.36232 AU
direct	3279 Aug 06 07:47	25° M 49'19		direct	3287 Aug 24 02:49	13° ♂ 10'37	
max. Earth dist.	3279 Nov 19 11:26	28° M 17'33	31.35819 AU				
				conjunction	3287 Dec 07 14:00	15° ♂ 40'27	1°30'12
conjunction	3279 Nov 20 08:18	28° M 19'29	1°35'45	minimum elong	3287 Dec 07 14:00	15° ♂ 40'27	1°30'13
minimum elong	3279 Nov 20 08:18	28° M 19'29	1°35'46	max. Earth dist.	3287 Dec 06 19:31	15° ♂ 38'43	31.36026 AU
	3280 Jan 08 14:46	0° ♂		retrograde	3288 Mar 18 23:45	18° ♂ 07'13	
retrograde	3280 Mar 01 11:37	0° ♂ 45'48		opposition	3288 Jun 05 11:21	16° ♂ 45'23	1°35'41
	3280 Apr 25 18:36	30° R M		min. Earth dist.	3288 Jun 06 04:32	16° ♂ 44'13	29.35970 AU
opposition	3280 May 18 14:50	29° M 23'54	1°42'10	direct	3288 Aug 25 14:07	15° ♂ 21'12	
min. Earth dist.	3280 May 19 11:03	29° M 22'32	29.35896 AU				

conjunction	3288 Dec 08 23:41	17° 2 50'59	1°28'55	conjunction	3296 Dec 26 02:11	5° 3 12'45	1°14'19
minimum elong	3288 Dec 08 23:41	17° 2 50'59	1°28'55	minimum elong	3296 Dec 26 02:11	5° 3 12'45	1°14'19
max. Earth dist.	3288 Dec 08 06:25	17° 2 49'22	31.35685 AU	max. Earth dist.	3296 Dec 25 13:30	5° 3 11'33	31.31555 AU
retrograde	3289 Mar 21 08:40	20° 2 17'49		retrograde	3297 Apr 07 20:06	7° 3 40'11	
opposition	3289 Jun 07 23:15	18° 2 55'56	1°34'14	opposition	3297 Jun 25 23:10	6° 3 17'56	1°18'10
min. Earth dist.	3289 Jun 08 16:25	18° 2 54'47	29.35541 AU	min. Earth dist.	3297 Jun 26 10:35	6° 3 17'10	29.31438 AU
direct	3289 Aug 28 02:50	17° 2 31'47		direct	3297 Sep 14 20:49	4° 3 53'57	
conjunction	3289 Dec 11 09:13	20° 2 01'29	1°27'30	conjunction	3297 Dec 28 11:30	7° 3 23'06	1°11'59
minimum elong	3289 Dec 11 09:13	20° 2 01'29	1°27'31	minimum elong	3297 Dec 28 11:31	7° 3 23'06	1°11'59
max. Earth dist.	3289 Dec 10 15:09	19° 2 59'47	31.35195 AU	max. Earth dist.	3297 Dec 28 00:30	7° 3 22'04	31.31193 AU
retrograde	3290 Mar 23 19:31	22° 2 28'22		retrograde	3298 Apr 10 05:56	9° 3 50'40	
opposition	3290 Jun 10 11:02	21° 2 06'26	1°32'40	opposition	3298 Jun 28 11:26	8° 3 28'24	1°15'37
min. Earth dist.	3290 Jun 11 03:25	21° 2 05'20	29.34987 AU	min. Earth dist.	3298 Jun 28 22:30	8° 3 27'39	29.31041 AU
direct	3290 Aug 30 15:05	19° 2 42'17		direct	3298 Sep 17 09:05	7° 3 04'28	
conjunction	3290 Dec 13 18:50	22° 2 11'54	1°25'58	conjunction	3298 Dec 30 20:43	9° 3 33'35	1°09'33
minimum elong	3290 Dec 13 18:50	22° 2 11'54	1°25'58	minimum elong	3298 Dec 30 20:44	9° 3 33'35	1°09'32
max. Earth dist.	3290 Dec 13 02:12	22° 2 10'20	31.34591 AU	max. Earth dist.	3298 Dec 30 09:19	9° 3 32'31	31.30774 AU
retrograde	3291 Mar 26 04:48	24° 2 38'49		retrograde	3299 Apr 12 18:22	12° 3 01'17	
opposition	3291 Jun 12 23:06	23° 2 16'49	1°30'58	opposition	3299 Jun 30 23:49	10° 3 38'59	1°12'57
min. Earth dist.	3291 Jun 13 15:48	23° 2 15'41	29.34344 AU	min. Earth dist.	3299 Jul 01 09:46	10° 3 38'19	29.30580 AU
direct	3291 Sep 02 03:35	21° 2 52'39		direct	3299 Sep 19 20:55	9° 3 15'07	
max. Earth dist.	3291 Dec 15 11:23	24° 2 20'36	31.33944 AU				
conjunction	3291 Dec 16 04:01	24° 2 22'10	1°24'19	conjunction	3300 Jan 02 06:03	11° 3 44'12	1°07'00
minimum elong	3291 Dec 16 04:02	24° 2 22'10	1°24'20	minimum elong	3300 Jan 02 06:03	11° 3 44'12	1°07'00
retrograde	3292 Mar 27 14:44	26° 2 49'08		max. Earth dist.	3300 Jan 01 20:06	11° 3 43'16	31.30254 AU
opposition	3292 Jun 14 11:00	25° 2 27'04	1°29'09	retrograde	3300 Apr 15 04:48	14° 3 12'01	
min. Earth dist.	3292 Jun 15 02:00	25° 2 26'03	29.33694 AU	opposition	3300 Jul 03 12:24	12° 3 49'42	1°10'11
direct	3292 Sep 03 15:18	24° 2 02'53		min. Earth dist.	3300 Jul 03 22:42	12° 3 49'00	29.29995 AU
conjunction	3292 Dec 17 13:23	26° 2 32'19	1°22'33	direct	3300 Sep 22 09:14	11° 3 25'53	
minimum elong	3292 Dec 17 13:23	26° 2 32'19	1°22'33	conjunction	3301 Jan 04 15:25	13° 3 54'55	1°04'22
max. Earth dist.	3292 Dec 16 21:55	26° 2 30'52	31.33305 AU	minimum elong	3301 Jan 04 15:25	13° 3 54'55	1°04'22
retrograde	3293 Mar 29 23:18	28° 2 59'20		max. Earth dist.	3301 Jan 04 05:18	13° 3 53'58	31.29613 AU
opposition	3293 Jun 16 22:54	27° 2 37'12	1°27'12	retrograde	3301 Apr 17 15:43	16° 3 22'51	
min. Earth dist.	3293 Jun 17 14:09	27° 2 36'10	29.33092 AU	opposition	3301 Jul 06 00:40	15° 3 00'30	1°07'19
direct	3293 Sep 06 01:49	26° 2 13'02		min. Earth dist.	3301 Jul 06 09:31	14° 3 59'54	29.29277 AU
conjunction	3293 Dec 19 22:40	28° 2 42'22	1°20'40	direct	3301 Sep 24 20:58	13° 3 36'42	
minimum elong	3293 Dec 19 22:40	28° 2 42'22	1°20'41	conjunction	3302 Jan 07 00:52	16° 3 05'41	1°01'38
max. Earth dist.	3293 Dec 19 07:59	28° 2 41'00	31.32753 AU	minimum elong	3302 Jan 07 00:53	16° 3 05'41	1°01'39
retrograde	3294 Jan 25 03:23	0° 3		max. Earth dist.	3302 Jan 06 15:25	16° 3 04'48	31.28821 AU
opposition	3294 Apr 01 09:31	1° 3 09'28		retrograde	3302 Apr 20 01:22	18° 3 33'44	
min. Earth dist.	3294 Jun 11 14:14	30° R 2		opposition	3302 Jul 08 13:21	17° 3 11'19	1°04'21
direct	3294 Jun 19 10:51	29° 2 47'17	1°25'07	min. Earth dist.	3302 Jul 08 22:42	17° 3 10'41	29.28420 AU
conjunction	3294 Dec 22 07:48	0° 3 52'25	1°18'40	direct	3302 Sep 27 07:58	15° 3 47'33	
minimum elong	3294 Dec 22 07:48	0° 3 52'25	1°18'40	conjunction	3303 Jan 09 10:08	18° 3 16'27	0°58'49
max. Earth dist.	3294 Dec 21 17:43	0° 3 51'06	31.32283 AU	minimum elong	3303 Jan 09 10:08	18° 3 16'27	0°58'49
retrograde	3295 Apr 03 20:31	3° 3 19'38		max. Earth dist.	3303 Jan 09 01:25	18° 3 15'38	31.27918 AU
opposition	3295 Jun 21 23:00	1° 3 57'25	1°22'56	retrograde	3303 Apr 22 11:55	20° 3 44'37	
min. Earth dist.	3295 Jun 22 12:17	1° 3 56'31	29.32152 AU	opposition	3303 Jul 11 01:54	19° 3 22'08	1°01'18
direct	3295 Sep 10 22:29	0° 3 33'18		min. Earth dist.	3303 Jul 11 09:38	19° 3 21'36	29.27456 AU
conjunction	3295 Dec 24 17:05	3° 3 02'32	1°16'33	direct	3303 Sep 29 19:23	17° 3 58'21	
minimum elong	3295 Dec 24 17:05	3° 3 02'32	1°16'34	conjunction	3304 Jan 11 19:23	20° 3 27'11	0°55'55
max. Earth dist.	3295 Dec 24 04:35	3° 3 01'21	31.31904 AU	minimum elong	3304 Jan 11 19:23	20° 3 27'11	0°55'56
retrograde	3296 Apr 05 07:29	5° 3 29'51		max. Earth dist.	3304 Jan 11 10:57	20° 3 26'24	31.26927 AU
opposition	3296 Jun 23 11:01	4° 3 07'36	1°20'36	retrograde	3304 Apr 23 23:10	22° 3 55'29	
min. Earth dist.	3296 Jun 23 23:01	4° 3 06'48	29.31785 AU	opposition	3304 Jul 12 14:27	21° 3 32'53	0°58'09
direct	3296 Sep 12 10:46	2° 3 43'34		min. Earth dist.	3304 Jul 12 22:14	21° 3 32'22	29.26460 AU
conjunction				direct	3304 Oct 01 05:31	20° 3 09'07	
minimum elong				conjunction	3305 Jan 13 04:38	22° 3 37'52	0°52'56
max. Earth dist.				minimum elong	3305 Jan 13 04:38	22° 3 37'53	0°52'56
				max. Earth dist.	3305 Jan 12 21:56	22° 3 37'15	31.25936 AU

retrograde	3305 Apr 26 10:07	25° $\overline{3}$ 06'17		retrograde	3313 May 14 07:27	12° \approx 36'57	
opposition	3305 Jul 15 02:58	23° $\overline{3}$ 43'37	0°54'56	opposition	3313 Aug 02 09:12	11° \approx 13'57	0°26'35
min. Earth dist.	3305 Jul 15 09:18	23° $\overline{3}$ 43'11	29.25477 AU	min. Earth dist.	3313 Aug 02 09:20	11° \approx 13'57	29.19268 AU
direct	3305 Oct 03 17:40	22° $\overline{3}$ 19'51		direct	3313 Oct 21 11:54	9° \approx 50'36	
conjunction	3306 Jan 15 13:43	24° $\overline{3}$ 48'33	0°49'53	conjunction	3314 Feb 01 16:56	12° \approx 19'05	0°23'08
minimum elong	3306 Jan 15 13:43	24° $\overline{3}$ 48'33	0°49'53	minimum elong	3314 Feb 01 16:56	12° \approx 19'05	0°23'08
max. Earth dist.	3306 Jan 15 07:00	24° $\overline{3}$ 47'56	31.24989 AU	max. Earth dist.	3314 Feb 01 17:41	12° \approx 19'09	31.18739 AU
retrograde	3306 Apr 28 22:53	27° $\overline{3}$ 17'06		retrograde	3314 May 16 18:12	14° \approx 48'57	
opposition	3306 Jul 17 15:33	25° $\overline{3}$ 54'22	0°51'38	opposition	3314 Aug 04 22:14	13° \approx 25'53	0°22'48
min. Earth dist.	3306 Jul 17 20:55	25° $\overline{3}$ 54'00	29.24580 AU	min. Earth dist.	3314 Aug 04 21:17	13° \approx 25'57	29.18186 AU
direct	3306 Oct 06 03:15	24° $\overline{3}$ 30'37		direct	3314 Oct 23 23:53	12° \approx 02'32	
conjunction	3307 Jan 17 23:01	26° $\overline{3}$ 59'18	0°46'46	conjunction	3315 Feb 04 02:35	14° \approx 30'58	0°19'35
minimum elong	3307 Jan 17 23:01	26° $\overline{3}$ 59'18	0°46'45	minimum elong	3315 Feb 04 02:35	14° \approx 30'58	0°19'35
max. Earth dist.	3307 Jan 17 18:23	26° $\overline{3}$ 58'52	31.24140 AU	max. Earth dist.	3315 Feb 04 02:49	14° \approx 30'59	31.17597 AU
retrograde	3307 May 01 09:19	29° $\overline{3}$ 27'59			3315 Feb 16 22:52	15° \approx	
opposition	3307 Jul 20 04:15	28° $\overline{3}$ 05'12	0°48'15	retrograde	3315 May 19 07:15	17° \approx 00'58	
min. Earth dist.	3307 Jul 20 08:43	28° $\overline{3}$ 04'54	29.23772 AU	opposition	3315 Aug 07 11:20	15° \approx 37'48	0°18'59
direct	3307 Oct 08 15:12	26° $\overline{3}$ 41'31		min. Earth dist.	3315 Aug 07 09:55	15° \approx 37'54	29.16989 AU
conjunction	3308 Jan 20 08:05	29° $\overline{3}$ 10'09	0°43'34		3315 Aug 31 14:13	15° \approx	
minimum elong	3308 Jan 20 08:05	29° $\overline{3}$ 10'09	0°43'34	direct	3315 Oct 26 09:27	14° \approx 14'26	
max. Earth dist.	3308 Jan 20 03:33	29° $\overline{3}$ 09'44	31.23390 AU		3315 Dec 18 13:07	15° \approx	
retrograde	3308 Feb 11 17:27	0° \approx		conjunction	3316 Feb 06 12:18	16° \approx 42'48	0°16'00
opposition	3308 May 02 22:46	1° \approx 39'00		minimum elong	3316 Feb 06 12:18	16° \approx 42'48	0°16'00
min. Earth dist.	3308 Jul 21 16:53	0° \approx 16'11	0°44'48	behind sun begin	3316 Feb 06 11:08	16° \approx 42'42	
direct	3308 Jul 31 17:59	30° \approx $\overline{3}$		behind sun end	3316 Feb 06 13:27	16° \approx 42'54	
	3308 Oct 10 03:01	28° $\overline{3}$ 52'34		max. Earth dist.	3316 Feb 06 14:13	16° \approx 42'58	31.16348 AU
	3308 Dec 14 20:38	0° \approx		retrograde	3316 May 20 18:13	19° \approx 12'56	
conjunction	3309 Jan 21 17:27	1° \approx 21'11	0°40'18	opposition	3316 Aug 09 00:23	17° \approx 49'38	0°15'08
minimum elong	3309 Jan 21 17:27	1° \approx 21'11	0°40'18	min. Earth dist.	3316 Aug 08 22:27	17° \approx 49'46	29.15695 AU
max. Earth dist.	3309 Jan 21 14:39	1° \approx 20'56	31.22698 AU	direct	3316 Oct 27 22:04	16° \approx 26'15	
retrograde	3309 May 05 10:12	3° \approx 50'13		conjunction	3317 Feb 07 21:52	18° \approx 54'33	0°12'24
opposition	3309 Jul 24 05:32	2° \approx 27'22	0°41'16	minimum elong	3317 Feb 07 21:53	18° \approx 54'33	0°12'24
min. Earth dist.	3309 Jul 24 08:28	2° \approx 27'10	29.22379 AU	behind sun begin	3317 Feb 07 17:36	18° \approx 54'09	
direct	3309 Oct 12 14:55	1° \approx 03'49		behind sun end	3317 Feb 08 02:09	18° \approx 54'56	
conjunction	3310 Jan 24 02:46	3° \approx 32'25	0°36'58	max. Earth dist.	3317 Feb 07 23:41	18° \approx 54'42	31.15046 AU
minimum elong	3310 Jan 24 02:46	3° \approx 32'25	0°36'58	retrograde	3317 May 23 07:57	21° \approx 24'48	
max. Earth dist.	3310 Jan 24 00:22	3° \approx 32'12	31.22039 AU	opposition	3317 Aug 11 13:15	20° \approx 01'23	0°11'16
retrograde	3310 May 07 21:47	6° \approx 01'37		min. Earth dist.	3317 Aug 11 09:58	20° \approx 01'37	29.14397 AU
opposition	3310 Jul 26 18:19	4° \approx 38'45	0°37'41	direct	3317 Oct 30 09:35	18° \approx 37'58	
min. Earth dist.	3310 Jul 26 19:24	4° \approx 38'41	29.21709 AU	conjunction	3318 Feb 10 07:36	21° \approx 06'14	0°08'47
direct	3310 Oct 15 02:35	3° \approx 15'15		minimum elong	3318 Feb 10 07:36	21° \approx 06'14	0°08'47
conjunction	3311 Jan 26 12:06	5° \approx 43'51	0°33'35	behind sun begin	3318 Feb 10 02:03	21° \approx 05'44	
minimum elong	3311 Jan 26 12:06	5° \approx 43'51	0°33'35	behind sun end	3318 Feb 10 13:09	21° \approx 06'44	
max. Earth dist.	3311 Jan 26 10:35	5° \approx 43'43	31.21348 AU	max. Earth dist.	3318 Feb 10 11:07	21° \approx 06'32	31.13758 AU
retrograde	3311 May 10 08:19	8° \approx 13'14		retrograde	3318 May 25 19:26	23° \approx 36'37	
opposition	3311 Jul 29 07:22	6° \approx 50'20	0°34'02	opposition	3318 Aug 14 02:23	22° \approx 13'06	0°07'23
min. Earth dist.	3311 Jul 29 08:44	6° \approx 50'14	29.20996 AU	min. Earth dist.	3318 Aug 13 22:54	22° \approx 13'21	29.13146 AU
direct	3311 Oct 17 13:54	5° \approx 26'54		direct	3318 Nov 01 21:25	20° \approx 49'42	
conjunction	3312 Jan 28 21:39	7° \approx 55'28	0°30'08	conjunction	3319 Feb 12 17:09	23° \approx 17'54	0°05'10
minimum elong	3312 Jan 28 21:40	7° \approx 55'28	0°30'09	minimum elong	3319 Feb 12 17:09	23° \approx 17'54	0°05'10
max. Earth dist.	3312 Jan 28 21:04	7° \approx 55'25	31.20603 AU	behind sun begin	3319 Feb 12 10:56	23° \approx 17'20	
retrograde	3312 May 11 19:51	10° \approx 25'01		behind sun end	3319 Feb 12 23:21	23° \approx 18'28	
opposition	3312 Jul 30 20:08	9° \approx 02'05	0°30'20	max. Earth dist.	3319 Feb 12 21:23	23° \approx 18'16	31.12559 AU
min. Earth dist.	3312 Jul 30 19:58	9° \approx 02'06	29.20194 AU	retrograde	3319 May 28 07:56	25° \approx 48'27	
direct	3312 Oct 19 01:43	7° \approx 38'42		opposition	3319 Aug 16 15:23	24° \approx 24'51	0°03'29
conjunction	3313 Jan 30 07:15	10° \approx 07'14	0°26'39	min. Earth dist.	3319 Aug 16 09:47	24° \approx 25'14	29.11995 AU
minimum elong	3313 Jan 30 07:15	10° \approx 07'14	0°26'39	direct	3319 Nov 04 09:26	23° \approx 01'27	
max. Earth dist.	3313 Jan 30 06:35	10° \approx 07'10	31.19738 AU	conjunction	3320 Feb 15 02:55	25° \approx 29'38	0°01'30
				minimum elong	3320 Feb 15 02:54	25° \approx 29'38	0°01'31
				behind sun begin	3320 Feb 14 20:30	25° \approx 29'04	

behind sun end	3320 Feb 15 09:18	25° 30 '13		direct	3326 Nov 19 14:26	8° 12 '29	12
max. Earth dist.	3320 Feb 15 08:06	25° 30 '06	31.11450 AU				
retrograde	3320 May 29 19:26	28° 00 '22		conjunction	3327 Mar 02 01:29	10° 15 '57	27 0°-23'-58
desc. node	3320 Jul 09 23:22	27° 33 '43		minimum elong	3327 Mar 02 01:29	10° 15 '57	27 0°23'58
opposition	3320 Aug 18 04:21	26° 36 '42	0°00'-24	max. Earth dist.	3327 Mar 02 12:01	10° 15 '58	26 31.04425 AU
min. Earth dist.	3320 Aug 17 22:47	26° 37 '05	29.10941 AU	retrograde	3327 Jun 15 11:14	13° 18 '29	31
direct	3320 Nov 05 20:52	25° 13 '20		opposition	3327 Sep 04 00:35	12° 18 '05	30 0°-27'-30
				min. Earth dist.	3327 Sep 03 14:22	12° 18 '06	12 29.03797 AU
				direct	3327 Nov 22 01:47	10° 18 '42	23
conjunction	3321 Feb 16 12:44	27° 41 '32	0°-2'-15				
minimum elong	3321 Feb 16 12:44	27° 41 '32	0°02'16				
behind sun begin	3321 Feb 16 06:20	27° 40 '57		conjunction	3328 Mar 03 12:00	13° 18 '10	37 0°-27'-30
behind sun end	3321 Feb 16 19:07	27° 42 '06		minimum elong	3328 Mar 03 11:59	13° 18 '10	37 0°27'30
max. Earth dist.	3321 Feb 16 19:16	27° 42 '07	31.10446 AU	max. Earth dist.	3328 Mar 03 22:43	13° 18 '11	37 31.03128 AU
	3321 May 04 18:34	0° 12 '		retrograde	3328 Jun 17 00:52	15° 18 '42	47
retrograde	3321 Jun 01 07:38	0° 12 '26		opposition	3328 Sep 05 13:33	14° 18 '18	41 0°-31'-16
	3321 Jun 29 10:05	30° 18 '		min. Earth dist.	3328 Sep 05 01:53	14° 18 '19	29 29.02459 AU
opposition	3321 Aug 20 17:18	28° 48 '44	0°-4'-19	direct	3328 Nov 23 14:21	12° 18 '55	32
min. Earth dist.	3321 Aug 20 09:47	28° 49 '15	29.09967 AU				
direct	3321 Nov 08 08:58	27° 25 '25		conjunction	3329 Mar 05 22:25	15° 18 '23	44 0°-30'-59
				minimum elong	3329 Mar 05 22:25	15° 18 '23	44 0°31'00
conjunction	3322 Feb 18 22:24	29° 53 '36	0°-5'-55	max. Earth dist.	3329 Mar 06 09:38	15° 18 '24	47 31.01758 AU
minimum elong	3322 Feb 18 22:25	29° 53 '36	0°05'55	retrograde	3329 Jun 19 13:42	17° 18 '56	02
behind sun begin	3322 Feb 18 16:18	29° 53 '03		opposition	3329 Sep 08 02:46	16° 18 '31	49 0°-34'-59
behind sun end	3322 Feb 19 04:32	29° 54 '10		min. Earth dist.	3329 Sep 07 15:27	16° 18 '32	35 29.01093 AU
max. Earth dist.	3322 Feb 19 05:15	29° 54 '14	31.09499 AU	direct	3329 Nov 26 02:50	15° 18 '08	38
	3322 Feb 21 17:48	0° 12 '					
retrograde	3322 Jun 03 19:29	2° 18 '24	43	conjunction	3330 Mar 08 08:49	17° 18 '36	47 0°-34'-26
opposition	3322 Aug 23 06:31	1° 18 '00	59 0°-8'-13	minimum elong	3330 Mar 08 08:49	17° 18 '36	47 0°34'27
min. Earth dist.	3322 Aug 22 22:57	1° 18 '01	30 29.09050 AU	max. Earth dist.	3330 Mar 08 21:20	17° 18 '37	58 31.00410 AU
	3322 Oct 04 02:30	30° 18 '		retrograde	3330 Jun 22 02:28	20° 18 '09	12
direct	3322 Nov 10 18:56	29° 37 '44		opposition	3330 Sep 10 15:49	18° 18 '44	52 0°-38'-39
	3322 Dec 17 06:06	0° 12 '		min. Earth dist.	3330 Sep 10 02:39	18° 18 '45	46 28.99775 AU
				direct	3330 Nov 28 16:02	17° 18 '21	40
conjunction	3323 Feb 21 08:28	2° 18 '05	56 0°-9'-33				
minimum elong	3323 Feb 21 08:28	2° 18 '05	56 0°09'34	conjunction	3331 Mar 10 19:16	19° 18 '49	47 0°-37'-50
behind sun begin	3323 Feb 21 03:08	2° 18 '05	27	minimum elong	3331 Mar 10 19:16	19° 18 '49	47 0°37'51
behind sun end	3323 Feb 21 13:49	2° 18 '06	25	max. Earth dist.	3331 Mar 11 07:57	19° 18 '50	59 30.99132 AU
max. Earth dist.	3323 Feb 21 17:07	2° 18 '06	44 31.08595 AU	retrograde	3331 Jun 24 13:56	22° 18 '22	21
retrograde	3323 Jun 06 06:43	4° 18 '37	15	opposition	3331 Sep 13 04:54	20° 18 '57	54 0°-42'-15
opposition	3323 Aug 25 19:36	3° 18 '13	29 0°-12'-7	min. Earth dist.	3331 Sep 12 15:43	20° 18 '58	48 28.98568 AU
min. Earth dist.	3323 Aug 25 10:47	3° 18 '14	05 29.08142 AU	direct	3331 Dec 01 02:28	19° 18 '34	41
direct	3323 Nov 13 06:21	1° 18 '50	17				
				conjunction	3332 Mar 12 05:55	22° 18 '02	47 0°-41'-11
conjunction	3324 Feb 23 18:27	4° 18 '18	30 0°-13'-10	minimum elong	3332 Mar 12 05:55	22° 18 '02	47 0°41'11
minimum elong	3324 Feb 23 18:27	4° 18 '18	30 0°13'12	max. Earth dist.	3332 Mar 12 20:29	22° 18 '04	10 30.97981 AU
behind sun begin	3324 Feb 23 14:35	4° 18 '18	09	retrograde	3332 Jun 26 01:01	24° 18 '35	28
behind sun end	3324 Feb 23 22:19	4° 18 '18	51	opposition	3332 Sep 14 17:52	23° 18 '10	58 0°-45'-48
max. Earth dist.	3324 Feb 24 02:44	4° 18 '19	17 31.07678 AU	min. Earth dist.	3332 Sep 14 03:15	23° 18 '11	58 28.97477 AU
retrograde	3324 Jun 07 20:27	6° 18 '50	02	direct	3332 Dec 02 14:54	21° 18 '47	44
opposition	3324 Aug 27 08:48	5° 18 '26	14 0°-16'00				
min. Earth dist.	3324 Aug 26 23:33	5° 18 '26	52 29.07208 AU	conjunction	3333 Mar 14 16:26	24° 18 '15	50 0°-44'-28
direct	3324 Nov 14 15:17	4° 18 '03	05	minimum elong	3333 Mar 14 16:26	24° 18 '15	50 0°44'29
				max. Earth dist.	3333 Mar 15 06:48	24° 18 '17	12 30.96954 AU
conjunction	3325 Feb 25 04:46	6° 18 '31	19 0°-16'-48	retrograde	3333 Jun 28 14:35	26° 18 '48	41
minimum elong	3325 Feb 25 04:46	6° 18 '31	19 0°16'49	opposition	3333 Sep 17 06:53	25° 18 '24	06 0°-49'-17
max. Earth dist.	3325 Feb 25 14:35	6° 18 '32	14 31.06697 AU	min. Earth dist.	3333 Sep 16 15:38	25° 18 '25	09 28.96524 AU
retrograde	3325 Jun 10 08:13	9° 18 '03	02	direct	3333 Dec 05 00:29	24° 18 '00	53
opposition	3325 Aug 29 21:57	7° 18 '39	12 0°-19'-52				
min. Earth dist.	3325 Aug 29 12:22	7° 18 '39	51 29.06180 AU	conjunction	3334 Mar 17 03:15	26° 18 '29	00 0°-47'-41
direct	3325 Nov 17 03:25	6° 18 '16	05	minimum elong	3334 Mar 17 03:14	26° 18 '29	00 0°47'42
				max. Earth dist.	3334 Mar 17 19:27	26° 18 '30	32 30.96054 AU
conjunction	3326 Feb 27 15:04	8° 18 '44	19 0°-20'-23	retrograde	3334 Jul 01 01:49	29° 18 '02	00
minimum elong	3326 Feb 27 15:04	8° 18 '44	19 0°20'24	opposition	3334 Sep 19 19:58	27° 18 '37	23 0°-52'-42
max. Earth dist.	3326 Feb 28 00:29	8° 18 '45	12 31.05624 AU	min. Earth dist.	3334 Sep 19 04:00	27° 18 '38	28 28.95678 AU
retrograde	3326 Jun 12 23:09	11° 18 '16	13	direct	3334 Dec 07 12:21	26° 18 '14	11
opposition	3326 Sep 01 11:14	9° 18 '52	19 0°-23'-42				
min. Earth dist.	3326 Sep 01 00:39	9° 18 '53	02 29.05053 AU	conjunction	3335 Mar 19 13:58	28° 18 '42	19 0°-50'-51

minimum elong	3335 Mar 19 13:58	28° 4 42'19	0°50'52	minimum elong	3343 Apr 06 09:15	16° 7 34'37	1°13'04
max. Earth dist.	3335 Mar 20 06:08	28° 4 43'51	30.95260 AU	max. Earth dist.	3343 Apr 07 05:21	16° 7 36'31	30.88071 AU
	3335 Apr 24 07:50	0° 7		retrograde	3343 Jul 22 01:04	19° 7 08'48	
retrograde	3335 Jul 03 16:11	1° 7 15'29		opposition	3343 Oct 10 17:17	17° 7 43'43	-1°-19'-23
	3335 Sep 16 19:09	30° 8		min. Earth dist.	3343 Oct 09 22:07	17° 7 45'03	28.87670 AU
opposition	3335 Sep 22 09:01	29° 4 50'50	0°-56'-2	direct	3343 Dec 27 20:54	16° 7 20'32	
min. Earth dist.	3335 Sep 21 15:59	29° 4 52'00	28.94922 AU				
direct	3335 Dec 09 22:19	28° 4 27'40		conjunction	3344 Apr 07 20:56	18° 7 48'52	-1°-15'-22
	3336 Feb 24 22:40	0° 7		minimum elong	3344 Apr 07 20:56	18° 7 48'52	1°15'23
				max. Earth dist.	3344 Apr 08 16:41	18° 7 50'45	30.87165 AU
conjunction	3336 Mar 21 01:03	0° 7 55'50	0°-53'-56	retrograde	3344 Jul 23 14:42	21° 7 23'08	
minimum elong	3336 Mar 21 01:02	0° 7 55'50	0°53'56	min. Earth dist.	3344 Oct 11 09:53	19° 7 59'24	28.86833 AU
max. Earth dist.	3336 Mar 21 18:26	0° 7 57'29	30.94513 AU	opposition	3344 Oct 12 05:55	19° 7 58'00	-1°-21'-48
retrograde	3336 Jul 05 04:27	3° 7 29'10		direct	3344 Dec 29 06:49	18° 7 34'48	
opposition	3336 Sep 23 22:00	2° 7 04'29	0°-59'-17				
min. Earth dist.	3336 Sep 23 05:20	2° 7 05'38	28.94191 AU	conjunction	3345 Apr 10 08:46	21° 7 03'11	-1°-17'-35
direct	3336 Dec 11 08:47	0° 7 41'22		minimum elong	3345 Apr 10 08:46	21° 7 03'11	1°17'36
				max. Earth dist.	3345 Apr 11 05:44	21° 7 05'10	30.86379 AU
conjunction	3337 Mar 23 12:12	3° 7 09'35	0°-56'-56	retrograde	3345 Jul 26 02:42	23° 7 37'33	
minimum elong	3337 Mar 23 12:12	3° 7 09'35	0°56'57	opposition	3345 Oct 14 18:45	22° 7 12'23	-1°-24'-7
max. Earth dist.	3337 Mar 24 05:49	3° 7 11'15	30.93785 AU	min. Earth dist.	3345 Oct 13 22:53	22° 7 13'45	28.86121 AU
retrograde	3337 Jul 07 19:23	5° 7 43'04		direct	3345 Dec 31 16:56	20° 7 49'10	
opposition	3337 Sep 26 11:03	4° 7 18'22	-1°-2'-28				
min. Earth dist.	3337 Sep 25 17:06	4° 7 19'36	28.93449 AU	conjunction	3346 Apr 12 20:30	23° 7 17'35	-1°-19'-41
direct	3337 Dec 13 20:54	2° 7 55'16		minimum elong	3346 Apr 12 20:30	23° 7 17'35	1°19'42
				max. Earth dist.	3346 Apr 13 17:48	23° 7 19'36	30.85744 AU
conjunction	3338 Mar 25 23:23	5° 7 23'32	0°-59'-51	retrograde	3346 Jul 28 17:17	25° 7 52'04	
minimum elong	3338 Mar 25 23:23	5° 7 23'32	0°59'52	min. Earth dist.	3346 Oct 16 10:14	24° 7 28'20	28.85552 AU
max. Earth dist.	3338 Mar 26 17:12	5° 7 25'13	30.93002 AU	opposition	3346 Oct 17 07:28	24° 7 26'52	-1°-26'-17
retrograde	3338 Jul 10 09:22	7° 7 57'11		direct	3347 Jan 03 05:05	23° 7 03'40	
min. Earth dist.	3338 Sep 28 07:07	6° 7 33'37	28.92638 AU				
opposition	3338 Sep 29 00:21	6° 7 32'26	-1°-5'-32	conjunction	3347 Apr 15 08:31	25° 7 32'08	-1°-21'-39
direct	3338 Dec 16 08:47	5° 7 09'22		minimum elong	3347 Apr 15 08:30	25° 7 32'08	1°21'40
				max. Earth dist.	3347 Apr 16 06:09	25° 7 34'11	30.85223 AU
conjunction	3339 Mar 28 10:57	7° 7 37'39	-1°-2'-41	retrograde	3347 Jul 31 07:00	28° 7 06'43	
minimum elong	3339 Mar 28 10:57	7° 7 37'39	1°02'42	opposition	3347 Oct 19 20:11	26° 7 41'31	-1°-28'-20
max. Earth dist.	3339 Mar 29 05:26	7° 7 39'25	30.92144 AU	min. Earth dist.	3347 Oct 18 23:39	26° 7 42'56	28.85092 AU
retrograde	3339 Jul 12 23:18	10° 7 11'26		direct	3348 Jan 05 16:14	25° 7 18'19	
opposition	3339 Oct 01 13:19	8° 7 46'39	-1°-8'-31				
min. Earth dist.	3339 Sep 30 18:55	8° 7 47'55	28.91726 AU	conjunction	3348 Apr 16 20:43	27° 7 46'52	-1°-23'-31
direct	3339 Dec 18 21:53	7° 7 23'34		minimum elong	3348 Apr 16 20:43	27° 7 46'52	1°23'32
				max. Earth dist.	3348 Apr 17 19:08	27° 7 48'59	30.84810 AU
conjunction	3340 Mar 29 22:28	9° 7 51'53	-1°-5'-26		3348 Jun 26 08:51	0° 8	
minimum elong	3340 Mar 29 22:28	9° 7 51'53	1°05'27	retrograde	3348 Aug 01 21:17	0° 8 21'32	
max. Earth dist.	3340 Mar 30 16:20	9° 7 53'35	30.91176 AU		3348 Sep 08 03:43	30° 8 7	
retrograde	3340 Jul 14 12:13	12° 7 25'46		min. Earth dist.	3348 Oct 20 11:03	28° 7 57'51	28.84706 AU
min. Earth dist.	3340 Oct 02 08:48	11° 7 02'08	28.90722 AU	opposition	3348 Oct 21 08:50	28° 7 56'20	-1°-30'-15
opposition	3340 Oct 03 02:30	11° 7 00'55	-1°-11'-24	direct	3349 Jan 07 04:44	27° 7 33'10	
direct	3340 Dec 20 08:55	9° 7 37'49			3349 Apr 18 14:04	0° 8	
conjunction	3341 Apr 01 10:03	12° 7 06'08	-1°-8'-4	conjunction	3349 Apr 19 08:49	0° 8 01'47	-1°-25'-14
minimum elong	3341 Apr 01 10:03	12° 7 06'08	1°08'06	minimum elong	3349 Apr 19 08:49	0° 8 01'47	1°25'15
max. Earth dist.	3341 Apr 02 05:15	12° 7 07'58	30.90135 AU	max. Earth dist.	3349 Apr 20 06:45	0° 8 03'51	30.84435 AU
retrograde	3341 Jul 17 00:32	14° 7 40'07		retrograde	3349 Aug 04 11:34	2° 8 36'33	
opposition	3341 Oct 05 15:26	13° 7 15'11	-1°-14'-10	opposition	3349 Oct 23 21:41	1° 8 11'21	-1°-32'-2
min. Earth dist.	3341 Oct 04 20:51	13° 7 16'29	28.89659 AU	min. Earth dist.	3349 Oct 23 00:44	1° 8 12'48	28.84346 AU
direct	3341 Dec 22 22:10	11° 7 52'04			3349 Dec 14 03:39	30° 8 7	
				direct	3350 Jan 09 15:55	29° 7 48'12	
conjunction	3342 Apr 03 21:34	14° 7 20'23	-1°-10'-37		3350 Feb 04 18:49	0° 8	
minimum elong	3342 Apr 03 21:34	14° 7 20'23	1°10'38				
max. Earth dist.	3342 Apr 04 16:07	14° 7 22'09	30.89078 AU	conjunction	3350 Apr 21 21:24	2° 8 16'53	-1°-26'-50
retrograde	3342 Jul 19 14:16	16° 7 54'28		minimum elong	3350 Apr 21 21:23	2° 8 16'52	1°26'51
min. Earth dist.	3342 Oct 07 09:44	15° 7 30'45	28.88632 AU	max. Earth dist.	3350 Apr 22 20:23	2° 8 19'03	30.84064 AU
opposition	3342 Oct 08 04:26	15° 7 29'27	-1°-16'-50	retrograde	3350 Aug 07 02:04	4° 8 51'43	
direct	3342 Dec 25 08:35	14° 7 06'18		opposition	3350 Oct 26 10:21	3° 8 26'31	-1°-33'-40
				min. Earth dist.	3350 Oct 25 12:54	3° 8 28'01	28.83950 AU
conjunction	3343 Apr 06 09:15	16° 7 34'37	-1°-13'-3	direct	3351 Jan 12 05:43	2° 8 03'22	

conjunction	3351 Apr 24 09:57	4°832'06	-1°-28'-18	conjunction	3359 May 12 16:53	22°832'45	-1°-35'-1
minimum elong	3351 Apr 24 09:57	4°832'06	1°28'18	minimum elong	3359 May 12 16:53	22°832'45	1°35'02
max. Earth dist.	3351 Apr 25 07:41	4°834'10	30.83629 AU	max. Earth dist.	3359 May 13 15:43	22°834'54	30.79396 AU
retrograde	3351 Aug 09 15:58	7°807'01		retrograde	3359 Aug 28 01:20	25°807'45	
opposition	3351 Oct 28 23:10	5°841'48	-1°-35'-9	min. Earth dist.	3359 Nov 15 05:06	23°843'45	28.79436 AU
min. Earth dist.	3351 Oct 28 02:18	5°843'15	28.83474 AU	opposition	3359 Nov 16 02:09	23°842'16	-1°-41'-45
direct	3352 Jan 14 16:49	4°818'38		direct	3360 Feb 01 16:22	22°818'45	
conjunction	3352 Apr 25 22:49	6°847'24	-1°-29'-37	conjunction	3360 May 14 05:55	24°847'51	-1°-35'-13
minimum elong	3352 Apr 25 22:49	6°847'24	1°29'38	minimum elong	3360 May 14 05:55	24°847'51	1°35'14
max. Earth dist.	3352 Apr 26 21:16	6°849'32	30.83089 AU	max. Earth dist.	3360 May 15 03:42	24°849'54	30.79298 AU
retrograde	3352 Aug 11 03:40	9°822'21		retrograde	3360 Aug 29 15:07	27°822'52	
opposition	3352 Oct 30 11:44	7°857'05	-1°-36'-30	opposition	3360 Nov 17 14:14	25°857'26	-1°-41'-52
min. Earth dist.	3352 Oct 29 15:05	7°858'32	28.82879 AU	min. Earth dist.	3360 Nov 16 17:40	25°858'52	28.79400 AU
direct	3353 Jan 16 05:39	6°833'53		direct	3361 Feb 03 03:08	24°833'55	
conjunction	3353 Apr 28 11:32	9°802'40	-1°-30'-49	conjunction	3361 May 16 19:13	27°803'07	-1°-35'-16
minimum elong	3353 Apr 28 11:32	9°802'40	1°30'50	minimum elong	3361 May 16 19:13	27°803'07	1°35'17
max. Earth dist.	3353 Apr 29 08:53	9°804'42	30.82461 AU	max. Earth dist.	3361 May 17 18:00	27°805'16	30.79306 AU
retrograde	3353 Aug 13 17:46	11°837'38		retrograde	3361 Sep 01 04:05	29°838'09	
min. Earth dist.	3353 Nov 01 03:31	10°813'46	28.82221 AU	min. Earth dist.	3361 Nov 19 05:51	28°814'12	28.79435 AU
opposition	3353 Nov 02 00:22	10°812'19	-1°-37'-42	opposition	3361 Nov 20 02:17	28°812'46	-1°-41'-50
direct	3354 Jan 18 16:38	8°849'03		direct	3362 Feb 05 15:48	26°849'16	
conjunction	3354 May 01 00:17	11°817'51	-1°-31'-52	conjunction	3362 May 19 08:30	29°818'33	-1°-35'-10
minimum elong	3354 May 01 00:16	11°817'51	1°31'53	minimum elong	3362 May 19 08:30	29°818'33	1°35'11
max. Earth dist.	3354 May 01 22:17	11°819'56	30.81776 AU	max. Earth dist.	3362 May 20 06:03	29°820'35	30.79369 AU
retrograde	3354 Aug 16 05:20	13°852'49			3362 Jun 06 20:45	0°II	
opposition	3354 Nov 04 12:57	12°827'27	-1°-38'-46	retrograde	3362 Sep 03 19:15	1°II53'37	
min. Earth dist.	3354 Nov 03 16:52	12°828'51	28.81532 AU	opposition	3362 Nov 22 14:22	0°II28'16	-1°-41'-39
direct	3355 Jan 21 03:58	11°804'07		min. Earth dist.	3362 Nov 21 18:02	0°II29'42	28.79502 AU
conjunction	3355 May 03 13:09	13°832'55	-1°-32'-47		3362 Dec 09 16:47	30°R8	
minimum elong	3355 May 03 13:09	13°832'55	1°32'48	direct	3363 Feb 08 02:48	29°804'47	
max. Earth dist.	3355 May 04 10:52	13°834'59	30.81106 AU		3363 Apr 07 01:37	0°II	
retrograde	3355 Jun 13 06:01	15°8		conjunction	3363 May 21 22:11	1°II34'10	-1°-34'-55
	3355 Aug 18 18:42	16°807'53		minimum elong	3363 May 21 22:11	1°II34'10	1°34'55
	3355 Oct 27 12:31	15°R8		max. Earth dist.	3363 May 22 20:00	1°II36'14	30.79410 AU
min. Earth dist.	3355 Nov 06 04:18	14°843'55	28.80888 AU	retrograde	3363 Sep 06 06:57	4°II09'14	
opposition	3355 Nov 07 01:11	14°842'27	-1°-39'-40	min. Earth dist.	3363 Nov 24 07:12	2°II45'16	28.79513 AU
direct	3356 Jan 23 16:03	13°819'03		opposition	3363 Nov 25 02:20	2°II43'56	-1°-41'-18
	3356 Apr 13 14:47	15°8		direct	3364 Feb 10 14:06	1°II20'25	
conjunction	3356 May 05 02:01	15°847'54	-1°-33'-34	conjunction	3364 May 23 11:53	3°II49'53	-1°-34'-31
minimum elong	3356 May 05 02:01	15°847'54	1°33'35	minimum elong	3364 May 23 11:53	3°II49'53	1°34'33
max. Earth dist.	3356 May 05 23:45	15°849'57	30.80489 AU	max. Earth dist.	3364 May 24 08:39	3°II51'50	30.79394 AU
retrograde	3356 Aug 20 07:03	18°822'52		retrograde	3364 Sep 07 20:10	6°II24'55	
opposition	3356 Nov 08 13:35	16°857'24	-1°-40'-25	opposition	3364 Nov 26 14:21	4°II59'38	-1°-40'-49
min. Earth dist.	3356 Nov 07 17:37	16°858'48	28.80327 AU	min. Earth dist.	3364 Nov 25 18:58	5°II01'00	28.79451 AU
direct	3357 Jan 25 02:57	15°833'56		direct	3365 Feb 12 02:01	3°II36'05	
conjunction	3357 May 07 14:50	18°802'50	-1°-34'-12	conjunction	3365 May 26 01:27	6°II05'36	-1°-33'-59
minimum elong	3357 May 07 14:50	18°802'50	1°34'12	minimum elong	3365 May 26 01:28	6°II05'36	1°34'00
max. Earth dist.	3357 May 08 13:08	18°804'56	30.79989 AU	max. Earth dist.	3365 May 26 21:43	6°II07'31	30.79283 AU
retrograde	3357 Aug 22 20:57	20°837'48		retrograde	3365 Sep 10 08:11	8°II40'36	
min. Earth dist.	3357 Nov 10 04:38	19°813'48	28.79889 AU	min. Earth dist.	3365 Nov 28 08:33	7°II16'34	28.79307 AU
opposition	3357 Nov 11 01:48	19°812'18	-1°-41'-1	opposition	3365 Nov 29 02:26	7°II15'18	-1°-40'-10
direct	3358 Jan 27 15:27	17°848'49		direct	3366 Feb 14 12:26	5°II51'41	
conjunction	3358 May 10 03:44	20°817'45	-1°-34'-41	conjunction	3366 May 28 15:15	8°II21'15	-1°-33'-19
minimum elong	3358 May 10 03:44	20°817'45	1°34'42	minimum elong	3366 May 28 15:15	8°II21'15	1°33'20
max. Earth dist.	3358 May 11 01:29	20°819'49	30.79616 AU	max. Earth dist.	3366 May 29 11:14	8°II23'08	30.79126 AU
retrograde	3358 Aug 25 10:55	22°852'45		retrograde	3366 Sep 12 21:29	10°II56'10	
opposition	3358 Nov 13 14:03	21°827'15	-1°-41'-27	opposition	3366 Dec 01 14:08	9°II30'51	-1°-39'-22
min. Earth dist.	3358 Nov 12 17:42	21°828'40	28.79598 AU	min. Earth dist.	3366 Nov 30 19:45	9°II32'09	28.79128 AU
direct	3359 Jan 30 02:40	20°803'44		direct	3367 Feb 17 00:45	8°II07'10	

conjunction	3367 May 31 04:58	10°II36'45	-1°-32'-30		3375 Jul 27 09:05	0°☾	
minimum elong	3367 May 31 04:58	10°II36'45	1°32'30	retrograde	3375 Oct 03 19:02	1°☾11'45	
max. Earth dist.	3367 May 31 23:49	10°II38'32	30.78945 AU		3375 Dec 14 01:05	30°RII	
retrograde	3367 Sep 15 10:12	13°II11'35		opposition	3375 Dec 21 21:17	29°II46'45	-1°-25'-33
min. Earth dist.	3367 Dec 03 08:54	11°II47'28	28.78964 AU	min. Earth dist.	3375 Dec 21 06:28	29°II47'47	28.81672 AU
opposition	3367 Dec 04 01:57	11°II46'15	-1°-38'-25	direct	3376 Mar 08 12:06	28°II22'43	
direct	3368 Feb 19 12:36	10°II22'29			3376 May 27 09:49	0°☾	
conjunction	3368 Jun 01 18:43	12°II52'07	-1°-31'-32	conjunction	3376 Jun 20 09:42	0°☾52'54	-1°-18'-59
minimum elong	3368 Jun 01 18:43	12°II52'07	1°31'33	minimum elong	3376 Jun 20 09:43	0°☾52'54	1°19'01
max. Earth dist.	3368 Jun 02 14:10	12°II53'56	30.78808 AU	max. Earth dist.	3376 Jun 21 00:46	0°☾54'19	30.81898 AU
retrograde	3368 Sep 16 23:17	15°II26'50		retrograde	3376 Oct 05 07:07	3°☾26'59	
opposition	3368 Dec 05 13:28	14°II01'30	-1°-37'-19	opposition	3376 Dec 23 08:43	2°☾02'02	-1°-23'-19
min. Earth dist.	3368 Dec 04 20:03	14°II02'43	28.78858 AU	min. Earth dist.	3376 Dec 22 19:35	2°☾02'58	28.82249 AU
direct	3369 Feb 21 02:21	12°II37'38		direct	3377 Mar 10 23:08	0°☾38'00	
conjunction	3369 Jun 04 08:19	15°II07'18	-1°-30'-26	conjunction	3377 Jun 23 00:02	3°☾08'15	-1°-16'-50
minimum elong	3369 Jun 04 08:19	15°II07'18	1°30'27	minimum elong	3377 Jun 23 00:02	3°☾08'15	1°16'51
max. Earth dist.	3369 Jun 05 02:28	15°II09'01	30.78761 AU	max. Earth dist.	3377 Jun 23 14:57	3°☾09'39	30.82441 AU
retrograde	3369 Sep 19 12:49	17°II41'57		retrograde	3377 Oct 07 19:56	5°☾42'14	
min. Earth dist.	3369 Dec 07 08:20	16°II17'46	28.78880 AU	opposition	3377 Dec 25 19:54	4°☾17'20	-1°-20'-57
opposition	3369 Dec 08 01:04	16°II16'35	-1°-36'-4	min. Earth dist.	3377 Dec 25 06:57	4°☾18'15	28.82739 AU
direct	3370 Feb 23 13:16	14°II52'39		direct	3378 Mar 13 12:14	2°☾53'15	
conjunction	3370 Jun 06 22:05	17°II22'22	-1°-29'-12	conjunction	3378 Jun 25 14:12	5°☾23'35	-1°-14'-35
minimum elong	3370 Jun 06 22:05	17°II22'22	1°29'14	minimum elong	3378 Jun 25 14:12	5°☾23'35	1°14'36
max. Earth dist.	3370 Jun 07 17:06	17°II24'09	30.78846 AU	max. Earth dist.	3378 Jun 26 03:09	5°☾24'47	30.82899 AU
retrograde	3370 Sep 22 01:59	19°II56'54		retrograde	3378 Oct 10 09:16	7°☾57'26	
opposition	3370 Dec 10 12:32	18°II31'34	-1°-34'-40	opposition	3378 Dec 28 07:09	6°☾32'35	-1°-18'-29
min. Earth dist.	3370 Dec 09 19:55	18°II32'44	28.79030 AU	min. Earth dist.	3378 Dec 27 19:31	6°☾33'24	28.83165 AU
direct	3371 Feb 26 02:53	17°II07'35		direct	3379 Mar 15 23:09	5°☾08'26	
conjunction	3371 Jun 09 11:50	19°II37'21	-1°-27'-50	conjunction	3379 Jun 28 04:35	7°☾38'49	-1°-12'-12
minimum elong	3371 Jun 09 11:51	19°II37'21	1°27'50	minimum elong	3379 Jun 28 04:35	7°☾38'49	1°12'13
max. Earth dist.	3371 Jun 10 05:29	19°II39'01	30.79082 AU	max. Earth dist.	3379 Jun 28 17:43	7°☾40'02	30.83302 AU
retrograde	3371 Sep 24 16:31	22°II11'48		retrograde	3379 Oct 12 22:10	10°☾12'31	
opposition	3371 Dec 12 23:52	20°II46'29	-1°-33'-8	opposition	3379 Dec 30 18:09	8°☾47'42	-1°-15'-53
min. Earth dist.	3371 Dec 12 07:12	20°II47'39	28.79344 AU	min. Earth dist.	3379 Dec 30 07:11	8°☾48'28	28.83546 AU
direct	3372 Feb 28 14:45	19°II22'28		direct	3380 Mar 17 13:11	7°☾23'29	
conjunction	3372 Jun 11 01:43	21°II52'18	-1°-26'-20	conjunction	3380 Jun 29 18:41	9°☾53'55	-1°-9'-44
minimum elong	3372 Jun 11 01:44	21°II52'18	1°26'21	minimum elong	3380 Jun 29 18:41	9°☾53'55	1°09'45
max. Earth dist.	3372 Jun 11 19:58	21°II54'01	30.79469 AU	max. Earth dist.	3380 Jun 30 05:55	9°☾54'58	30.83699 AU
retrograde	3372 Sep 26 03:58	24°II26'40		retrograde	3380 Oct 14 12:10	12°☾27'28	
opposition	3372 Dec 14 11:20	23°II01'25	-1°-31'-27	opposition	3381 Jan 01 05:10	11°☾02'40	-1°-13'-11
min. Earth dist.	3372 Dec 13 19:31	23°II02'32	28.79800 AU	min. Earth dist.	3380 Dec 31 18:34	11°☾03'25	28.83959 AU
direct	3373 Mar 02 02:30	21°II37'24		direct	3381 Mar 20 01:40	9°☾38'24	
conjunction	3373 Jun 13 15:25	24°II07'18	-1°-24'-41	conjunction	3381 Jul 02 08:46	12°☾08'53	-1°-7'-9
minimum elong	3373 Jun 13 15:25	24°II07'18	1°24'42	minimum elong	3381 Jul 02 08:46	12°☾08'53	1°07'09
max. Earth dist.	3373 Jun 14 08:50	24°II08'56	30.80007 AU	max. Earth dist.	3381 Jul 02 20:19	12°☾09'57	30.84133 AU
retrograde	3373 Sep 28 17:44	26°II41'35		retrograde	3381 Oct 16 23:30	14°☾42'17	
opposition	3373 Dec 16 22:41	25°II16'24	-1°-29'-37	opposition	3382 Jan 03 16:10	13°☾17'31	-1°-10'-22
min. Earth dist.	3373 Dec 16 06:30	25°II17'33	28.80386 AU	min. Earth dist.	3382 Jan 03 06:43	13°☾18'11	28.84423 AU
direct	3374 Mar 04 14:04	23°II52'23		direct	3382 Mar 22 14:05	11°☾53'11	
conjunction	3374 Jun 16 05:27	26°II22'23	-1°-22'-55	conjunction	3382 Jul 04 22:53	14°☾23'42	-1°-4'-28
minimum elong	3374 Jun 16 05:27	26°II22'23	1°22'57	minimum elong	3382 Jul 04 22:53	14°☾23'42	1°04'30
max. Earth dist.	3374 Jun 16 22:35	26°II23'59	30.80628 AU	max. Earth dist.	3382 Jul 05 09:09	14°☾24'39	30.84656 AU
retrograde	3374 Oct 01 05:59	28°II56'37		retrograde	3382 Oct 19 13:19	16°☾56'57	
opposition	3374 Dec 19 10:02	27°II31'31	-1°-27'-39	opposition	3383 Jan 06 02:53	15°☾32'13	-1°-7'-27
min. Earth dist.	3374 Dec 18 19:28	27°II32'33	28.81032 AU	min. Earth dist.	3383 Jan 05 17:13	15°☾32'55	28.84997 AU
direct	3375 Mar 07 00:05	26°II07'30		direct	3383 Mar 25 02:19	14°☾07'50	
conjunction	3375 Jun 18 19:38	28°II37'36	-1°-21'-1	conjunction	3383 Jul 07 13:03	16°☾38'25	-1°-1'-41
minimum elong	3375 Jun 18 19:38	28°II37'36	1°21'01	minimum elong	3383 Jul 07 13:03	16°☾38'25	1°01'42
max. Earth dist.	3375 Jun 19 12:08	28°II39'08	30.81290 AU	max. Earth dist.	3383 Jul 07 23:06	16°☾39'21	30.85284 AU

retrograde	3383 Oct 22 01:10	19° \mathring{O} 11'31		minimum elong	3391 Jul 26 06:22	4° \mathring{O} 35'28	0°36'29
opposition	3384 Jan 08 13:49	17° \mathring{O} 46'50	-1°-4'-25	max. Earth dist.	3391 Jul 26 08:40	4° \mathring{O} 35'41	30.92691 AU
min. Earth dist.	3384 Jan 08 05:34	17° \mathring{O} 47'26	28.85693 AU	retrograde	3391 Nov 09 03:03	7° \mathring{O} 07'23	
direct	3384 Mar 26 12:49	16° \mathring{O} 22'26		opposition	3392 Jan 26 03:32	5° \mathring{O} 43'19	0°-37'-9
				min. Earth dist.	3392 Jan 26 00:55	5° \mathring{O} 43'30	28.93054 AU
conjunction	3384 Jul 09 03:00	18° \mathring{O} 53'02	0°-58'-49	direct	3392 Apr 13 13:07	4° \mathring{O} 18'41	
minimum elong	3384 Jul 09 03:01	18° \mathring{O} 53'02	0°58'51				
max. Earth dist.	3384 Jul 09 12:32	18° \mathring{O} 53'55	30.86060 AU	conjunction	3392 Jul 27 20:21	6° \mathring{O} 49'43	0°-33'-2
retrograde	3384 Oct 23 12:51	21° \mathring{O} 26'00		minimum elong	3392 Jul 27 20:21	6° \mathring{O} 49'43	0°33'04
opposition	3385 Jan 10 00:33	20° \mathring{O} 01'24	-1°-1'-18	max. Earth dist.	3392 Jul 27 22:13	6° \mathring{O} 49'54	30.93383 AU
min. Earth dist.	3385 Jan 09 15:43	20° \mathring{O} 02'02	28.86530 AU	retrograde	3392 Nov 10 14:00	9° \mathring{O} 21'27	
direct	3385 Mar 29 01:03	18° \mathring{O} 36'58		opposition	3393 Jan 27 14:09	7° \mathring{O} 57'24	0°-33'-27
				min. Earth dist.	3393 Jan 27 13:20	7° \mathring{O} 57'28	28.93734 AU
conjunction	3385 Jul 11 17:02	21° \mathring{O} 07'38	0°-55'-51	direct	3393 Apr 16 00:49	6° \mathring{O} 32'43	
minimum elong	3385 Jul 11 17:02	21° \mathring{O} 07'38	0°55'52				
max. Earth dist.	3385 Jul 12 01:35	21° \mathring{O} 08'26	30.86966 AU	conjunction	3393 Jul 30 10:19	9° \mathring{O} 03'45	0°-29'-33
retrograde	3385 Oct 25 23:54	23° \mathring{O} 40'29		minimum elong	3393 Jul 30 10:19	9° \mathring{O} 03'45	0°29'34
opposition	3386 Jan 12 11:20	22° \mathring{O} 15'58	0°-58'-5	max. Earth dist.	3393 Jul 30 11:09	9° \mathring{O} 03'50	30.94071 AU
min. Earth dist.	3386 Jan 12 03:56	22° \mathring{O} 16'30	28.87502 AU	retrograde	3393 Nov 13 01:44	11° \mathring{O} 35'18	
direct	3386 Mar 31 11:13	20° \mathring{O} 51'31		opposition	3394 Jan 30 00:26	10° \mathring{O} 11'17	0°-29'-42
				min. Earth dist.	3394 Jan 29 23:24	10° \mathring{O} 11'21	28.94422 AU
conjunction	3386 Jul 14 07:15	23° \mathring{O} 22'16	0°-52'-48	direct	3394 Apr 18 13:41	8° \mathring{O} 46'31	
minimum elong	3386 Jul 14 07:15	23° \mathring{O} 22'16	0°52'50				
max. Earth dist.	3386 Jul 14 15:48	23° \mathring{O} 23'04	30.87994 AU	conjunction	3394 Aug 02 00:16	11° \mathring{O} 17'35	0°-26'-2
retrograde	3386 Oct 28 12:06	25° \mathring{O} 54'58		minimum elong	3394 Aug 02 00:16	11° \mathring{O} 17'35	0°26'03
opposition	3387 Jan 14 22:01	24° \mathring{O} 30'34	0°-54'-47	max. Earth dist.	3394 Aug 01 23:57	11° \mathring{O} 17'33	30.94775 AU
min. Earth dist.	3387 Jan 14 14:40	24° \mathring{O} 31'06	28.88545 AU	retrograde	3394 Nov 15 12:22	13° \mathring{O} 48'56	
direct	3387 Apr 02 23:04	23° \mathring{O} 06'07		opposition	3395 Feb 01 10:54	12° \mathring{O} 24'57	0°-25'-55
				min. Earth dist.	3395 Feb 01 11:25	12° \mathring{O} 24'55	28.95163 AU
conjunction	3387 Jul 16 21:22	25° \mathring{O} 36'57	0°-49'-41	direct	3395 Apr 21 00:09	11° \mathring{O} 00'08	
minimum elong	3387 Jul 16 21:22	25° \mathring{O} 36'57	0°49'41				
max. Earth dist.	3387 Jul 17 04:08	25° \mathring{O} 37'35	30.89056 AU	conjunction	3395 Aug 04 14:05	13° \mathring{O} 31'13	0°-22'-28
retrograde	3387 Oct 31 00:24	28° \mathring{O} 09'32		minimum elong	3395 Aug 04 14:05	13° \mathring{O} 31'13	0°22'29
opposition	3388 Jan 17 08:44	26° \mathring{O} 45'14	0°-51'-24	max. Earth dist.	3395 Aug 04 13:42	13° \mathring{O} 31'10	30.95558 AU
min. Earth dist.	3388 Jan 17 02:44	26° \mathring{O} 45'39	28.89611 AU		3395 Sep 16 00:02	15° \mathring{O}	
direct	3388 Apr 04 09:27	25° \mathring{O} 20'46		retrograde	3395 Nov 17 23:22	16° \mathring{O} 02'23	
					3396 Jan 22 01:21	15° \mathring{R} \mathring{O}	
conjunction	3388 Jul 18 11:42	27° \mathring{O} 51'40	0°-46'-28	opposition	3396 Feb 03 21:10	14° \mathring{O} 38'27	0°-22'-6
minimum elong	3388 Jul 18 11:42	27° \mathring{O} 51'40	0°46'30	min. Earth dist.	3396 Feb 03 21:34	14° \mathring{O} 38'26	28.95989 AU
max. Earth dist.	3388 Jul 18 18:31	27° \mathring{O} 52'18	30.90101 AU	direct	3396 Apr 22 12:00	13° \mathring{O} 13'35	
	3388 Sep 24 07:15	0° \mathring{O}			3396 Jul 16 19:43	15° \mathring{O}	
retrograde	3388 Nov 01 12:18	0° \mathring{O} 24'07					
	3388 Dec 10 08:08	30° \mathring{R} \mathring{O}		conjunction	3396 Aug 06 03:45	15° \mathring{O} 44'42	0°-18'-53
opposition	3389 Jan 18 19:30	28° \mathring{O} 59'54	0°-47'-56	minimum elong	3396 Aug 06 03:45	15° \mathring{O} 44'42	0°18'55
min. Earth dist.	3389 Jan 18 14:21	29° \mathring{O} 00'16	28.90615 AU	max. Earth dist.	3396 Aug 06 01:54	15° \mathring{O} 44'31	30.96448 AU
direct	3389 Apr 06 23:02	27° \mathring{O} 35'25		retrograde	3396 Nov 19 10:18	18° \mathring{O} 15'43	
	3389 Jul 18 05:17	0° \mathring{O}		opposition	3397 Feb 05 07:31	16° \mathring{O} 51'51	0°-18'-15
				min. Earth dist.	3397 Feb 05 08:48	16° \mathring{O} 51'45	28.96958 AU
conjunction	3389 Jul 21 01:47	0° \mathring{O} 06'23	0°-43'-12	direct	3397 Apr 24 22:13	15° \mathring{O} 26'57	
minimum elong	3389 Jul 21 01:47	0° \mathring{O} 06'23	0°43'12				
max. Earth dist.	3389 Jul 21 06:18	0° \mathring{O} 06'48	30.91068 AU	conjunction	3397 Aug 08 17:27	17° \mathring{O} 58'06	0°-15'-17
retrograde	3389 Nov 04 01:45	2° \mathring{O} 38'41		minimum elong	3397 Aug 08 17:27	17° \mathring{O} 58'06	0°15'17
opposition	3390 Jan 21 06:16	1° \mathring{O} 14'31	0°-44'-24	behind sun begin	3397 Aug 08 15:49	17° \mathring{O} 57'57	
min. Earth dist.	3390 Jan 21 01:51	1° \mathring{O} 14'50	28.91531 AU	behind sun end	3397 Aug 08 19:06	17° \mathring{O} 58'15	
	3390 Mar 15 23:28	30° \mathring{R} \mathring{O}		max. Earth dist.	3397 Aug 08 16:07	17° \mathring{O} 57'59	30.97484 AU
direct	3390 Apr 09 11:20	29° \mathring{O} 50'00		retrograde	3397 Nov 21 20:51	20° \mathring{O} 28'58	
	3390 May 03 19:39	0° \mathring{O}		opposition	3398 Feb 07 17:51	19° \mathring{O} 05'12	0°-14'-22
				min. Earth dist.	3398 Feb 07 19:35	19° \mathring{O} 05'04	28.98048 AU
conjunction	3390 Jul 23 16:11	2° \mathring{O} 21'00	0°-39'-52	direct	3398 Apr 27 11:05	17° \mathring{O} 40'18	
minimum elong	3390 Jul 23 16:11	2° \mathring{O} 21'00	0°39'53				
max. Earth dist.	3390 Jul 23 20:26	2° \mathring{O} 21'24	30.91924 AU	conjunction	3398 Aug 11 07:06	20° \mathring{O} 11'30	0°-11'-39
retrograde	3390 Nov 06 13:11	4° \mathring{O} 53'07		minimum elong	3398 Aug 11 07:06	20° \mathring{O} 11'30	0°11'40
opposition	3391 Jan 23 16:55	3° \mathring{O} 29'00	0°-40'-48	behind sun begin	3398 Aug 11 02:31	20° \mathring{O} 11'06	
min. Earth dist.	3391 Jan 23 14:09	3° \mathring{O} 29'12	28.92329 AU	behind sun end	3398 Aug 11 11:41	20° \mathring{O} 11'55	
direct	3391 Apr 11 23:53	2° \mathring{O} 04'26		max. Earth dist.	3398 Aug 11 03:55	20° \mathring{O} 11'14	30.98644 AU
				retrograde	3398 Nov 24 09:27	22° \mathring{O} 42'14	
conjunction	3391 Jul 26 06:22	4° \mathring{O} 35'28	0°-36'-28	opposition	3399 Feb 10 04:01	21° \mathring{O} 18'34	0°-10'-28

min. Earth dist.	3399 Feb 10 06:04	21°018'25	28.99259 AU	direct	3405 May 13 23:22	3°013'59	
direct	3399 Apr 29 22:17	19°053'40					
conjunction	3399 Aug 13 20:52	22°024'58	0°-8'-1	conjunction	3405 Aug 28 05:58	5°045'24	0°14'00
minimum elong	3399 Aug 13 20:53	22°024'58	0°08'01	minimum elong	3405 Aug 28 05:58	5°045'24	0°14'00
behind sun begin	3399 Aug 13 15:01	22°024'27		behind sun begin	3405 Aug 28 02:49	5°045'08	
behind sun end	3399 Aug 14 02:45	22°025'29		behind sun end	3405 Aug 28 09:07	5°045'41	
max. Earth dist.	3399 Aug 13 17:59	22°024'43	30.99885 AU	max. Earth dist.	3405 Aug 27 19:59	5°044'30	31.06286 AU
retrograde	3399 Nov 26 20:36	24°055'34		retrograde	3405 Dec 10 16:45	8°015'02	
opposition	3400 Feb 12 14:24	23°032'01	0°-6'-34	opposition	3406 Feb 26 04:05	6°051'51	0°16'50
min. Earth dist.	3400 Feb 12 17:50	23°031'46	29.00516 AU	min. Earth dist.	3406 Feb 26 12:40	6°051'14	29.06720 AU
direct	3400 May 02 10:06	22°0207'09		direct	3406 May 16 10:16	5°026'50	
conjunction	3400 Aug 16 10:19	24°038'30	0°-4'-22	conjunction	3406 Aug 30 19:18	7°058'13	0°17'35
minimum elong	3400 Aug 16 10:19	24°038'30	0°04'23	minimum elong	3406 Aug 30 19:18	7°058'13	0°17'35
behind sun begin	3400 Aug 16 03:51	24°037'55		max. Earth dist.	3406 Aug 30 09:35	7°057'20	31.07136 AU
behind sun end	3400 Aug 16 16:48	24°039'04		retrograde	3406 Dec 13 01:38	10°027'39	
max. Earth dist.	3400 Aug 16 05:42	24°038'06	31.01150 AU	opposition	3407 Feb 28 14:12	9°004'29	0°20'40
retrograde	3400 Nov 29 10:28	27°028'59		min. Earth dist.	3407 Feb 28 23:29	9°003'50	29.07572 AU
opposition	3401 Feb 15 00:40	25°045'31	0°-2'-38	direct	3407 May 18 22:37	7°039'25	
min. Earth dist.	3401 Feb 15 04:09	25°045'16	29.01764 AU	conjunction	3407 Sep 02 08:17	10°010'47	0°21'09
direct	3401 May 04 23:24	24°022'40		minimum elong	3407 Sep 02 08:17	10°010'47	0°21'09
retrograde	3401 Dec 01 21:21	29°022'25		max. Earth dist.	3407 Sep 01 20:49	10°009'43	31.08014 AU
conjunction	3401 Aug 19 00:04	26°052'04	0°00'-39	retrograde	3407 Dec 15 13:07	12°040'01	
minimum elong	3401 Aug 19 00:04	26°052'04	0°00'40	opposition	3408 Mar 02 00:20	11°016'53	0°24'27
behind sun begin	3401 Aug 18 17:28	26°051'29		min. Earth dist.	3408 Mar 02 09:40	11°016'13	29.08493 AU
behind sun end	3401 Aug 19 06:39	26°052'39		direct	3408 May 20 09:18	9°051'45	
direct	3401 Dec 01 15:46	29°022'25		conjunction	3408 Sep 03 21:08	12°023'06	0°24'41
max. Earth dist.	3401 Aug 18 19:00	26°051'38	31.02356 AU	minimum elong	3408 Sep 03 21:08	12°023'06	0°24'40
asc. node	3401 Oct 21 12:00	28°054'04		max. Earth dist.	3408 Sep 03 10:16	12°022'06	31.08969 AU
retrograde	3401 Dec 01 21:21	29°022'25		retrograde	3408 Dec 16 22:29	14°052'10	
opposition	3402 Feb 17 11:00	27°059'02	0°01'16	opposition	3409 Mar 04 10:34	13°029'04	0°28'13
min. Earth dist.	3402 Feb 17 16:29	27°058'39	29.02935 AU	min. Earth dist.	3409 Mar 04 20:57	13°028'20	29.09503 AU
direct	3402 May 07 11:17	26°034'11		direct	3409 May 22 21:23	12°003'55	
conjunction	3402 Aug 21 13:45	29°0205'37	0°03'06	conjunction	3409 Sep 06 09:56	14°035'14	0°28'10
minimum elong	3402 Aug 21 13:45	29°0205'37	0°03'06	minimum elong	3409 Sep 06 09:55	14°035'14	0°28'10
behind sun begin	3402 Aug 21 07:11	29°0205'02		max. Earth dist.	3409 Sep 05 21:42	14°034'07	31.10046 AU
behind sun end	3402 Aug 21 20:18	29°0206'12		retrograde	3409 Dec 19 10:46	17°004'09	
max. Earth dist.	3402 Aug 21 07:16	29°0205'03	31.03481 AU	opposition	3410 Mar 06 20:31	15°041'06	0°31'55
retrograde	3402 Sep 15 12:16	0°020		min. Earth dist.	3410 Mar 07 06:26	15°040'24	29.10645 AU
opposition	3402 Dec 04 09:23	1°035'47		direct	3410 May 25 10:23	14°015'57	
min. Earth dist.	3403 Feb 19 21:18	0°0212'30	0°05'11	conjunction	3410 Sep 08 22:50	16°047'17	0°31'38
direct	3403 Feb 20 02:45	0°0212'06	29.04000 AU	minimum elong	3410 Sep 08 22:50	16°047'17	0°31'37
retrograde	3403 Feb 27 07:14	30°0247'37		max. Earth dist.	3410 Sep 08 10:48	16°046'11	31.11242 AU
direct	3403 May 10 00:20	0°020		retrograde	3410 Dec 21 20:55	19°016'04	
conjunction	3403 Aug 24 03:15	1°019'04	0°06'45	opposition	3411 Mar 09 06:46	17°053'06	0°35'35
minimum elong	3403 Aug 24 03:15	1°019'04	0°06'45	min. Earth dist.	3411 Mar 09 18:06	17°052'18	29.11903 AU
behind sun begin	3403 Aug 23 21:06	1°018'32		direct	3411 May 27 21:57	16°027'58	
behind sun end	3403 Aug 24 09:23	1°019'37		conjunction	3411 Sep 11 11:27	18°059'19	0°35'02
max. Earth dist.	3403 Aug 23 19:28	1°018'22	31.04487 AU	minimum elong	3411 Sep 11 11:27	18°059'19	0°35'02
retrograde	3403 Dec 06 20:27	3°049'04		max. Earth dist.	3411 Sep 10 22:44	18°058'09	31.12551 AU
opposition	3404 Feb 22 07:41	2°025'49	0°09'05	retrograde	3411 Dec 24 08:47	21°027'59	
min. Earth dist.	3404 Feb 22 14:52	2°025'19	29.04969 AU	opposition	3412 Mar 10 16:52	20°005'07	0°39'12
direct	3404 May 11 11:11	1°0200'55		min. Earth dist.	3412 Mar 11 03:43	20°004'21	29.13237 AU
conjunction	3404 Aug 25 16:43	3°032'21	0°10'23	direct	3412 May 29 10:43	18°040'01	
minimum elong	3404 Aug 25 16:43	3°032'21	0°10'23	max. Earth dist.	3412 Sep 12 10:41	21°010'10	31.13893 AU
behind sun begin	3404 Aug 25 11:35	3°031'54		conjunction	3412 Sep 13 00:10	21°011'25	0°38'23
behind sun end	3404 Aug 25 21:52	3°032'48		minimum elong	3412 Sep 13 00:09	21°011'25	0°38'23
max. Earth dist.	3404 Aug 25 08:28	3°031'36	31.05419 AU	retrograde	3412 Dec 25 20:05	23°039'58	
retrograde	3404 Dec 08 07:04	6°020'09		opposition	3413 Mar 13 03:04	22°017'12	0°42'45
opposition	3405 Feb 23 17:51	4°038'57	0°12'58	min. Earth dist.	3413 Mar 13 15:24	22°016'20	29.14589 AU
min. Earth dist.	3405 Feb 24 01:17	4°038'25	29.05859 AU	direct	3413 May 31 21:26	20°052'09	

conjunction	3413 Sep 15 12:55	23° 17 23'34	0°41'41	direct	3421 Jun 18 20:31	8° 22 27'18	
minimum elong	3413 Sep 15 12:54	23° 17 23'34	0°41'41				
max. Earth dist.	3413 Sep 14 23:06	23° 17 22'18	31.15220 AU	conjunction	3421 Oct 03 15:16	10° 25 58'33	1°05'24
retrograde	3413 Dec 28 06:42	25° 17 52'01		minimum elong	3421 Oct 03 15:16	10° 25 58'33	1°05'24
opposition	3414 Mar 15 13:20	24° 17 29'21	0°46'15	max. Earth dist.	3421 Oct 02 19:59	10° 25 56'46	31.22608 AU
min. Earth dist.	3414 Mar 16 01:53	24° 17 28'28	29.15871 AU	retrograde	3422 Jan 14 17:28	13° 25 25'59	
direct	3414 Jun 03 09:50	23° 17 04'20		opposition	3422 Apr 01 23:50	12° 25 03'38	1°11'14
max. Earth dist.	3414 Sep 17 10:05	25° 17 34'20	31.16447 AU	min. Earth dist.	3422 Apr 02 17:21	12° 25 02'25	29.23123 AU
				direct	3422 Jun 21 08:21	10° 25 38'34	
conjunction	3414 Sep 18 01:34	25° 17 35'46	0°44'55	max. Earth dist.	3422 Oct 05 08:03	13° 25 08'02	31.23538 AU
minimum elong	3414 Sep 18 01:34	25° 17 35'46	0°44'55				
retrograde	3414 Dec 30 16:46	28° 17 04'06		conjunction	3422 Oct 06 03:02	13° 25 09'47	1°07'58
opposition	3415 Mar 17 23:38	26° 17 41'31	0°49'40	minimum elong	3422 Oct 06 03:02	13° 25 09'47	1°07'58
min. Earth dist.	3415 Mar 18 13:17	26° 17 40'34	29.17056 AU	retrograde	3423 Jan 17 03:10	15° 25 37'06	
direct	3415 Jun 05 20:22	25° 17 16'32		opposition	3423 Apr 04 10:10	14° 25 14'48	1°13'55
				min. Earth dist.	3423 Apr 05 03:18	14° 25 13'37	29.24093 AU
conjunction	3415 Sep 20 14:17	27° 17 47'58	0°48'05	direct	3423 Jun 23 21:29	12° 25 49'46	
minimum elong	3415 Sep 20 14:17	27° 17 47'58	0°48'05				
max. Earth dist.	3415 Sep 19 22:58	27° 17 46'33	31.17565 AU	conjunction	3423 Oct 08 14:40	15° 25 20'58	1°10'26
	3415 Dec 02 05:57	0° 25		minimum elong	3423 Oct 08 14:40	15° 25 20'58	1°10'26
retrograde	3416 Jan 02 01:41	0° 25 16'11		max. Earth dist.	3423 Oct 07 18:46	15° 25 19'07	31.24553 AU
	3416 Feb 02 10:09	30° 25 R 17		retrograde	3424 Jan 19 13:05	17° 25 48'12	
opposition	3416 Mar 19 10:03	28° 17 53'40	0°53'00	opposition	3424 Apr 05 20:35	16° 25 25'58	1°16'30
min. Earth dist.	3416 Mar 20 00:33	28° 17 52'39	29.18109 AU	min. Earth dist.	3424 Apr 06 14:06	16° 25 24'45	29.25154 AU
direct	3416 Jun 07 08:12	27° 17 28'41		direct	3424 Jun 25 07:44	15° 25 00'58	
max. Earth dist.	3416 Sep 21 09:21	29° 17 58'31	31.18559 AU	max. Earth dist.	3424 Oct 09 07:11	17° 25 30'24	31.25626 AU
conjunction	3416 Sep 22 02:36	0° 25 00'06	0°51'11	conjunction	3424 Oct 10 02:15	17° 25 32'10	1°12'48
minimum elong	3416 Sep 22 02:35	0° 25 00'06	0°51'11	minimum elong	3424 Oct 10 02:15	17° 25 32'10	1°12'49
	3416 Sep 22 01:27	0° 25		retrograde	3425 Jan 20 21:43	19° 25 59'19	
retrograde	3417 Jan 03 13:01	2° 25 28'12		opposition	3425 Apr 08 07:02	18° 25 37'10	1°18'58
opposition	3417 Mar 21 20:21	1° 25 05'43	0°56'16	min. Earth dist.	3425 Apr 09 01:06	18° 25 35'55	29.26219 AU
min. Earth dist.	3417 Mar 22 11:06	1° 25 04'42	29.19055 AU	direct	3425 Jun 27 19:29	17° 25 12'13	
	3417 May 05 18:36	30° 25 R 17					
direct	3417 Jun 09 18:26	29° 17 40'43		conjunction	3425 Oct 12 13:47	19° 25 43'23	1°15'04
	3417 Jul 14 11:19	0° 25		minimum elong	3425 Oct 12 13:47	19° 25 43'23	1°15'04
				max. Earth dist.	3425 Oct 11 17:13	19° 25 41'29	31.26674 AU
conjunction	3417 Sep 24 15:08	2° 25 12'08	0°54'12	retrograde	3426 Jan 23 08:53	22° 25 10'29	
minimum elong	3417 Sep 24 15:08	2° 25 12'08	0°54'11	opposition	3426 Apr 10 17:24	20° 25 48'24	1°21'20
max. Earth dist.	3417 Sep 23 22:08	2° 25 10'34	31.19441 AU	min. Earth dist.	3426 Apr 11 11:24	20° 25 47'09	29.27244 AU
retrograde	3418 Jan 05 21:51	4° 25 40'05		direct	3426 Jun 30 05:32	19° 25 23'28	
opposition	3418 Mar 24 06:38	3° 25 17'39	0°59'27	max. Earth dist.	3426 Oct 14 05:27	21° 25 52'47	31.27642 AU
min. Earth dist.	3418 Mar 24 22:50	3° 25 16'32	29.19890 AU				
direct	3418 Jun 12 06:32	1° 25 52'38		conjunction	3426 Oct 15 01:28	21° 25 54'38	1°17'13
max. Earth dist.	3418 Sep 26 08:48	4° 25 22'18	31.20246 AU	minimum elong	3426 Oct 15 01:28	21° 25 54'38	1°17'13
				retrograde	3427 Jan 25 17:08	24° 25 21'40	
conjunction	3418 Sep 27 03:23	4° 25 24'01	0°57'08	opposition	3427 Apr 13 04:08	22° 25 59'38	1°23'34
minimum elong	3418 Sep 27 03:23	4° 25 24'01	0°57'08	min. Earth dist.	3427 Apr 13 23:25	22° 25 58'18	29.28161 AU
retrograde	3419 Jan 08 09:32	6° 25 51'50		direct	3427 Jul 02 17:12	21° 25 34'45	
opposition	3419 Mar 26 16:53	5° 25 29'25	1°02'32				
min. Earth dist.	3419 Mar 27 08:46	5° 25 28'19	29.20671 AU	conjunction	3427 Oct 17 12:46	24° 25 05'52	1°19'15
direct	3419 Jun 14 19:41	4° 25 04'22		minimum elong	3427 Oct 17 12:46	24° 25 05'52	1°19'15
				max. Earth dist.	3427 Oct 16 15:23	24° 25 03'53	31.28497 AU
conjunction	3419 Sep 29 15:28	6° 25 35'43	0°59'59	retrograde	3428 Jan 28 04:11	26° 25 32'49	
minimum elong	3419 Sep 29 15:27	6° 25 35'43	0°59'59	opposition	3428 Apr 14 14:45	25° 25 10'49	1°25'41
max. Earth dist.	3419 Sep 28 21:07	6° 25 34'01	31.21000 AU	min. Earth dist.	3428 Apr 15 09:34	25° 25 09'31	29.28950 AU
retrograde	3420 Jan 10 18:58	9° 25 03'24		direct	3428 Jul 04 05:08	23° 25 45'56	
opposition	3420 Mar 28 03:18	7° 25 41'00	1°05'32	max. Earth dist.	3428 Oct 18 03:00	26° 25 15'03	31.29204 AU
min. Earth dist.	3420 Mar 28 20:35	7° 25 39'47	29.21435 AU				
direct	3420 Jun 16 07:14	6° 25 15'56		conjunction	3428 Oct 19 00:18	26° 25 17'01	1°21'11
max. Earth dist.	3420 Sep 30 08:29	8° 25 45'28	31.21779 AU	minimum elong	3428 Oct 19 00:17	26° 25 17'01	1°21'11
				retrograde	3429 Jan 29 13:38	28° 25 43'55	
conjunction	3420 Oct 01 03:23	8° 25 47'13	1°02'44	opposition	3429 Apr 17 01:24	27° 25 21'55	1°27'40
minimum elong	3420 Oct 01 03:22	8° 25 47'13	1°02'44	min. Earth dist.	3429 Apr 17 21:47	27° 25 20'31	29.29594 AU
retrograde	3421 Jan 12 06:12	11° 25 14'46		direct	3429 Jul 06 15:55	25° 25 57'02	
opposition	3421 Mar 30 13:26	9° 25 52'23	1°08'26				
min. Earth dist.	3421 Mar 31 06:02	9° 25 51'14	29.22237 AU	conjunction	3429 Oct 21 11:40	28° 25 28'04	1°22'59

minimum elong	3429 Oct 21 11:40	28° 2 28'04	1°22'59			3437 Oct 15 08:48	15° 1	
max. Earth dist.	3429 Oct 20 13:40	28° 2 26'02	31.29780 AU	max. Earth dist.		3437 Nov 07 04:24	15° 1 49'53	31.33391 AU
	3429 Dec 04 20:40	0° 1						
retrograde	3430 Feb 01 00:40	0° 1 54'52		conjunction		3437 Nov 08 01:48	15° 1 51'53	1°32'57
	3430 Apr 02 19:33	30° 1 5		minimum elong		3437 Nov 08 01:48	15° 1 51'52	1°32'57
opposition	3430 Apr 19 12:02	29° 2 32'54	1°29'32	retrograde		3438 Feb 18 06:02	18° 1 18'20	
min. Earth dist.	3430 Apr 20 07:54	29° 2 31'31	29.30098 AU	opposition		3438 May 07 02:11	16° 1 56'29	1°39'38
direct	3430 Jul 09 05:37	28° 2 08'00		min. Earth dist.		3438 May 07 22:51	16° 1 55'04	29.33793 AU
	3430 Oct 06 06:24	0° 1		direct		3438 Jul 27 00:03	15° 1 31'46	
conjunction	3430 Oct 23 22:52	0° 1 38'59	1°24'40	conjunction		3438 Nov 10 12:11	18° 1 02'23	1°33'36
minimum elong	3430 Oct 23 22:52	0° 1 38'59	1°24'41	minimum elong		3438 Nov 10 12:10	18° 1 02'23	1°33'37
max. Earth dist.	3430 Oct 23 00:19	0° 1 36'53	31.30216 AU	max. Earth dist.		3438 Nov 09 14:43	18° 1 00'23	31.33979 AU
retrograde	3431 Feb 03 11:38	3° 1 05'42		retrograde		3439 Feb 20 17:10	20° 1 28'51	
opposition	3431 Apr 21 22:48	1° 1 43'42	1°31'16	opposition		3439 May 09 13:12	19° 1 07'03	1°40'16
min. Earth dist.	3431 Apr 22 19:42	1° 1 42'16	29.30497 AU	min. Earth dist.		3439 May 10 08:57	19° 1 05'42	29.34339 AU
direct	3431 Jul 11 17:38	0° 1 18'48		direct		3439 Jul 29 13:22	17° 1 42'24	
max. Earth dist.	3431 Oct 25 11:44	2° 1 47'39	31.30579 AU					
conjunction	3431 Oct 26 09:58	2° 1 49'42	1°26'14	conjunction		3439 Nov 12 22:35	20° 1 12'59	1°34'08
minimum elong	3431 Oct 26 09:58	2° 1 49'42	1°26'14	minimum elong		3439 Nov 12 22:35	20° 1 12'59	1°34'08
retrograde	3432 Feb 05 20:59	5° 1 16'20		max. Earth dist.		3439 Nov 12 00:49	20° 1 10'57	31.34472 AU
opposition	3432 Apr 23 09:28	3° 1 54'20	1°32'53	retrograde		3440 Feb 23 05:03	22° 1 39'27	
min. Earth dist.	3432 Apr 24 06:05	3° 1 52'55	29.30828 AU	opposition		3440 May 11 00:18	21° 1 17'40	1°40'46
direct	3432 Jul 13 07:13	2° 1 29'25		min. Earth dist.		3440 May 11 20:50	21° 1 16'16	29.34792 AU
				direct		3440 Jul 31 00:43	19° 1 53'04	
conjunction	3432 Oct 27 20:45	5° 1 00'15	1°27'40	max. Earth dist.		3440 Nov 13 11:40	22° 1 21'38	31.34860 AU
minimum elong	3432 Oct 27 20:44	5° 1 00'15	1°27'41	conjunction		3440 Nov 14 08:58	22° 1 23'37	1°34'31
max. Earth dist.	3432 Oct 26 21:40	4° 1 58'06	31.30898 AU	minimum elong		3440 Nov 14 08:57	22° 1 23'37	1°34'32
retrograde	3433 Feb 07 06:52	7° 1 26'48		retrograde		3441 Feb 24 14:36	24° 1 50'05	
opposition	3433 Apr 25 20:09	6° 1 04'48	1°34'21	opposition		3441 May 13 11:29	23° 1 28'18	1°41'07
min. Earth dist.	3433 Apr 26 16:57	6° 1 03'22	29.31162 AU	min. Earth dist.		3441 May 14 07:45	23° 1 26'55	29.35098 AU
direct	3433 Jul 15 18:08	4° 1 39'52		direct		3441 Aug 02 14:02	22° 1 03'44	
max. Earth dist.	3433 Oct 29 09:43	7° 1 08'36	31.31241 AU					
conjunction	3433 Oct 30 07:36	7° 1 10'38	1°28'59	conjunction		3441 Nov 16 19:15	24° 1 34'13	1°34'47
minimum elong	3433 Oct 30 07:36	7° 1 10'38	1°28'58	minimum elong		3441 Nov 16 19:15	24° 1 34'13	1°34'46
retrograde	3434 Feb 09 14:57	9° 1 37'07		max. Earth dist.		3441 Nov 15 20:58	24° 1 32'09	31.35095 AU
opposition	3434 Apr 28 06:52	8° 1 15'07	1°35'41	retrograde		3442 Feb 27 01:19	27° 1 00'40	
min. Earth dist.	3434 Apr 29 03:47	8° 1 13'40	29.31533 AU	opposition		3442 May 15 22:40	25° 1 38'54	1°41'19
direct	3434 Jul 18 06:32	6° 1 50'11		min. Earth dist.		3442 May 16 19:06	25° 1 37'30	29.35272 AU
				direct		3442 Aug 05 01:18	24° 1 14'19	
conjunction	3434 Nov 01 18:13	9° 1 20'54	1°30'10	max. Earth dist.		3442 Nov 18 08:23	26° 1 42'46	31.35200 AU
minimum elong	3434 Nov 01 18:13	9° 1 20'54	1°30'10	conjunction		3442 Nov 19 05:35	26° 1 44'45	1°34'54
max. Earth dist.	3434 Oct 31 19:28	9° 1 18'48	31.31659 AU	minimum elong		3442 Nov 19 05:35	26° 1 44'45	1°34'55
retrograde	3435 Feb 12 01:48	11° 1 47'21		retrograde		3443 Mar 01 10:11	29° 1 11'10	
opposition	3435 Apr 30 17:38	10° 1 25'22	1°36'53	opposition		3443 May 18 10:02	27° 1 49'22	1°41'23
min. Earth dist.	3435 May 01 13:37	10° 1 24'00	29.32008 AU	min. Earth dist.		3443 May 19 06:46	27° 1 47'58	29.35308 AU
direct	3435 Jul 20 16:46	9° 1 00'29		direct		3443 Aug 07 14:53	26° 1 24'48	
max. Earth dist.	3435 Nov 03 07:19	11° 1 29'10	31.32176 AU					
conjunction	3435 Nov 04 04:45	11° 1 31'09	1°31'14	conjunction		3443 Nov 21 15:32	28° 1 55'08	1°34'54
minimum elong	3435 Nov 04 04:45	11° 1 31'09	1°31'13	minimum elong		3443 Nov 21 15:32	28° 1 55'08	1°34'54
retrograde	3436 Feb 14 09:37	13° 1 57'36		max. Earth dist.		3443 Nov 20 17:24	28° 1 53'04	31.35190 AU
opposition	3436 May 02 04:32	12° 1 35'39	1°37'57			3443 Dec 21 13:42	0° 1 2	
min. Earth dist.	3436 May 03 01:08	12° 1 34'14	29.32566 AU	retrograde		3444 Mar 02 20:54	1° 1 21'32	
direct	3436 Jul 22 03:57	11° 1 10'49		opposition		3444 May 19 21:15	29° 1 59'42	1°41'18
						3444 May 19 16:48	30° 1 5	
conjunction	3436 Nov 05 15:13	13° 1 41'28	1°32'09	min. Earth dist.		3444 May 20 17:11	29° 1 58'20	29.35258 AU
minimum elong	3436 Nov 05 15:13	13° 1 41'28	1°32'10	direct		3444 Aug 09 02:15	28° 1 35'07	
max. Earth dist.	3436 Nov 04 17:09	13° 1 39'25	31.32776 AU			3444 Oct 23 21:05	0° 1 2	
	3436 Dec 12 14:54	15° 1		max. Earth dist.		3444 Nov 22 04:39	1° 1 20'23	31.35103 AU
retrograde	3437 Feb 15 20:19	16° 1 07'54		conjunction		3444 Nov 23 01:38	1° 1 20'52	1°34'45
	3437 Apr 26 02:09	15° 1 5		minimum elong		3444 Nov 23 01:38	1° 1 20'52	1°34'46
opposition	3437 May 04 15:08	14° 1 46'00	1°38'52	retrograde		3445 Mar 05 04:05	3° 1 21'43	
min. Earth dist.	3437 May 05 10:45	14° 1 44'40	29.33183 AU	opposition		3445 May 22 08:28	2° 1 20'50	1°41'05
direct	3437 Jul 24 14:36	13° 1 21'14		min. Earth dist.		3445 May 23 05:06	2° 1 20'82	29.35154 AU

direct	3445 Aug 11 13:59	0°♂45'14		minimum elong	3453 Dec 12 16:58	20°♂35'55	1°27'30
				max. Earth dist.	3453 Dec 12 00:06	20°♂34'20	31.35544 AU
conjunction	3445 Nov 25 11:30	3°♂15'22	1°34'29	retrograde	3454 Mar 25 00:37	23°♂02'45	
minimum elong	3445 Nov 25 11:30	3°♂15'22	1°34'29	opposition	3454 Jun 11 16:42	21°♂40'53	1°32'42
max. Earth dist.	3445 Nov 24 14:13	3°♂13'22	31.35009 AU	min. Earth dist.	3454 Jun 12 09:39	21°♂39'44	29.35515 AU
retrograde	3446 Mar 07 14:05	5°♂41'43		direct	3454 Aug 31 20:52	20°♂16'45	
opposition	3446 May 24 19:46	4°♂19'47	1°40'43	max. Earth dist.	3454 Dec 14 09:15	22°♂44'51	31.35281 AU
min. Earth dist.	3446 May 25 14:57	4°♂18'29	29.35074 AU				
direct	3446 Aug 14 01:03	2°♂55'11		conjunction	3454 Dec 15 02:27	22°♂46'28	1°26'03
				minimum elong	3454 Dec 15 02:27	22°♂46'28	1°26'03
conjunction	3446 Nov 27 21:15	5°♂25'13	1°34'05	retrograde	3455 Mar 27 11:09	25°♂13'22	
minimum elong	3446 Nov 27 21:15	5°♂25'13	1°34'05	opposition	3455 Jun 14 04:38	23°♂51'29	1°31'05
max. Earth dist.	3446 Nov 27 01:00	5°♂23'20	31.34954 AU	min. Earth dist.	3455 Jun 14 20:18	23°♂50'25	29.35168 AU
retrograde	3447 Mar 09 23:22	7°♂51'36		direct	3455 Sep 03 08:00	22°♂27'22	
opposition	3447 May 27 07:16	6°♂29'38	1°40'13				
min. Earth dist.	3447 May 28 02:52	6°♂28'18	29.35069 AU	conjunction	3455 Dec 17 12:07	24°♂57'01	1°24'28
direct	3447 Aug 16 10:47	5°♂05'03		minimum elong	3455 Dec 17 12:07	24°♂57'01	1°24'28
max. Earth dist.	3447 Nov 29 11:24	7°♂33'11	31.35004 AU	max. Earth dist.	3455 Dec 16 19:28	24°♂55'27	31.34859 AU
				retrograde	3456 Mar 28 20:55	27°♂24'00	
conjunction	3447 Nov 30 06:58	7°♂35'01	1°33'32	opposition	3456 Jun 15 16:35	26°♂02'03	1°29'21
minimum elong	3447 Nov 30 06:58	7°♂35'01	1°33'32	min. Earth dist.	3456 Jun 16 09:02	26°♂00'57	29.34683 AU
retrograde	3448 Mar 11 09:48	10°♂01'25		direct	3456 Sep 04 17:45	24°♂37'57	
opposition	3448 May 28 18:31	8°♂39'27	1°39'34				
min. Earth dist.	3448 May 29 12:35	8°♂38'13	29.35158 AU	conjunction	3456 Dec 18 21:38	27°♂07'31	1°22'47
direct	3448 Aug 17 23:21	7°♂14'55		minimum elong	3456 Dec 18 21:38	27°♂07'31	1°22'47
				max. Earth dist.	3456 Dec 18 05:32	27°♂06'00	31.34325 AU
conjunction	3448 Dec 01 16:38	9°♂44'50	1°32'52	retrograde	3457 Mar 31 07:16	29°♂34'32	
minimum elong	3448 Dec 01 16:38	9°♂44'50	1°32'52	opposition	3457 Jun 18 04:30	28°♂12'33	1°27'29
max. Earth dist.	3448 Nov 30 21:14	9°♂43'01	31.35136 AU	min. Earth dist.	3457 Jun 18 19:37	28°♂11'31	29.34090 AU
retrograde	3449 Mar 13 21:30	12°♂11'17		direct	3457 Sep 07 06:40	26°♂48'26	
opposition	3449 May 31 06:00	10°♂49'20	1°38'46				
min. Earth dist.	3449 Jun 01 00:11	10°♂48'06	29.35326 AU	conjunction	3457 Dec 21 06:56	29°♂17'54	1°20'58
direct	3449 Aug 20 09:35	9°♂24'51		minimum elong	3457 Dec 21 06:56	29°♂17'54	1°20'58
max. Earth dist.	3449 Dec 03 08:09	11°♂53'03	31.35325 AU	max. Earth dist.	3457 Dec 20 14:56	29°♂16'24	31.33706 AU
					3458 Jan 09 04:44	0°♂	
conjunction	3449 Dec 04 02:18	11°♂54'45	1°32'03	retrograde	3458 Apr 02 19:02	1°♂45'00	
minimum elong	3449 Dec 04 02:18	11°♂54'45	1°32'03	opposition	3458 Jun 20 16:36	0°♂22'55	1°25'29
retrograde	3450 Mar 16 07:17	14°♂21'16		min. Earth dist.	3458 Jun 21 07:40	0°♂21'54	29.33469 AU
opposition	3450 Jun 02 17:32	12°♂59'21	1°37'50		3458 Jul 04 23:39	30°♂	
min. Earth dist.	3450 Jun 03 10:57	12°♂58'10	29.35507 AU	direct	3458 Sep 09 16:32	28°♂58'48	
direct	3450 Aug 22 22:04	11°♂34'57			3458 Nov 11 18:49	0°♂	
conjunction	3450 Dec 06 11:53	14°♂04'49	1°31'06	conjunction	3458 Dec 23 16:18	1°♂28'12	1°19'03
minimum elong	3450 Dec 06 11:53	14°♂04'49	1°31'07	minimum elong	3458 Dec 23 16:18	1°♂28'12	1°19'04
max. Earth dist.	3450 Dec 05 17:17	14°♂03'05	31.35507 AU	max. Earth dist.	3458 Dec 23 01:53	1°♂26'50	31.33098 AU
retrograde	3451 Mar 18 19:03	16°♂31'25		retrograde	3459 Apr 05 04:39	3°♂55'21	
opposition	3451 Jun 05 05:13	15°♂09'31	1°36'46	opposition	3459 Jun 23 04:40	2°♂33'13	1°23'23
min. Earth dist.	3451 Jun 05 22:15	15°♂08'22	29.35675 AU	min. Earth dist.	3459 Jun 23 18:34	2°♂32'16	29.32876 AU
direct	3451 Aug 25 08:51	13°♂45'12		direct	3459 Sep 12 04:46	1°♂09'06	
				max. Earth dist.	3459 Dec 25 10:54	3°♂37'03	31.32545 AU
conjunction	3451 Dec 08 21:32	16°♂15'03	1°30'02				
minimum elong	3451 Dec 08 21:32	16°♂15'03	1°30'01	conjunction	3459 Dec 26 01:25	3°♂38'25	1°17'01
max. Earth dist.	3451 Dec 08 04:25	16°♂13'27	31.35637 AU	minimum elong	3459 Dec 26 01:25	3°♂38'25	1°17'01
retrograde	3452 Mar 20 04:46	18°♂41'43		retrograde	3460 Apr 06 16:53	6°♂05'39	
opposition	3452 Jun 06 17:00	17°♂19'51	1°35'33	opposition	3460 Jun 24 16:44	4°♂43'28	1°21'09
min. Earth dist.	3452 Jun 07 10:11	17°♂18'41	29.35750 AU	min. Earth dist.	3460 Jun 25 05:43	4°♂42'35	29.32366 AU
direct	3452 Aug 26 22:00	15°♂55'37		direct	3460 Sep 13 15:58	3°♂19'23	
conjunction	3452 Dec 10 07:09	18°♂25'25	1°28'50	conjunction	3460 Dec 27 10:46	5°♂48'38	1°14'52
minimum elong	3452 Dec 10 07:09	18°♂25'25	1°28'50	minimum elong	3460 Dec 27 10:46	5°♂48'38	1°14'53
max. Earth dist.	3452 Dec 09 13:14	18°♂23'45	31.35662 AU	max. Earth dist.	3460 Dec 26 22:11	5°♂47'28	31.32072 AU
retrograde	3453 Mar 22 16:23	20°♂52'11		retrograde	3461 Apr 09 03:13	8°♂15'58	
opposition	3453 Jun 09 04:39	19°♂30'19	1°34'11	opposition	3461 Jun 27 04:49	6°♂53'45	1°18'48
min. Earth dist.	3453 Jun 09 20:55	19°♂29'13	29.35710 AU	min. Earth dist.	3461 Jun 27 17:24	6°♂52'54	29.31919 AU
direct	3453 Aug 29 09:09	18°♂06'08		direct	3461 Sep 16 05:12	5°♂29'43	
conjunction	3453 Dec 12 16:58	20°♂35'55	1°27'30	conjunction	3461 Dec 29 19:57	7°♂58'56	1°12'37

minimum elong	3461 Dec 29 19:57	7°☾58'56	1°12'37	opposition	3470 Jul 17 21:02	26°☾30'28	0°52'58
max. Earth dist.	3461 Dec 29 07:15	7°☾57'44	31.31670 AU	min. Earth dist.	3470 Jul 18 04:11	26°☾29'59	29.25695 AU
retrograde	3462 Apr 11 15:06	10°☾26'22		direct	3470 Oct 06 11:56	25°☾06'43	
opposition	3462 Jun 29 17:00	9°☾04'08	1°16'20				
min. Earth dist.	3462 Jun 30 04:00	9°☾03'23	29.31534 AU	conjunction	3471 Jan 18 07:48	27°☾35'26	0°48'02
direct	3462 Sep 18 16:06	7°☾40'09		minimum elong	3471 Jan 18 07:48	27°☾35'26	0°48'03
				max. Earth dist.	3471 Jan 18 00:48	27°☾34'47	31.25126 AU
conjunction	3463 Jan 01 05:10	10°☾09'20	1°10'16		3471 Apr 16 06:03	0°≈	
minimum elong	3463 Jan 01 05:10	10°☾09'20	1°10'16	retrograde	3471 May 01 18:17	0°≈03'58	
max. Earth dist.	3462 Dec 31 18:02	10°☾08'17	31.31291 AU		3471 May 17 07:35	30°☾	
retrograde	3463 Apr 14 00:02	12°☾36'54		opposition	3471 Jul 20 09:36	28°☾41'14	0°49'39
opposition	3463 Jul 02 05:25	11°☾14'38	1°13'45	min. Earth dist.	3471 Jul 20 15:02	28°☾40'52	29.24608 AU
min. Earth dist.	3463 Jul 02 16:38	11°☾13'53	29.31149 AU	direct	3471 Oct 08 23:01	27°☾17'29	
direct	3463 Sep 21 04:10	9°☾50'44					
conjunction	3464 Jan 03 14:26	12°☾19'52	1°07'48	conjunction	3472 Jan 20 17:05	29°☾46'09	0°44'55
minimum elong	3464 Jan 03 14:26	12°☾19'52	1°07'48	minimum elong	3472 Jan 20 17:06	29°☾46'09	0°44'54
max. Earth dist.	3464 Jan 03 03:30	12°☾18'50	31.30902 AU	max. Earth dist.	3472 Jan 20 11:42	29°☾45'38	31.24061 AU
retrograde	3464 Apr 15 11:14	14°☾47'32			3472 Jan 26 19:58	0°≈	
opposition	3464 Jul 03 17:33	13°☾25'17	1°11'04	retrograde	3472 May 03 03:44	2°≈14'48	
min. Earth dist.	3464 Jul 04 03:12	13°☾24'37	29.30725 AU	opposition	3472 Jul 21 22:07	0°≈52'00	0°46'17
direct	3464 Sep 22 15:44	12°☾01'25		min. Earth dist.	3472 Jul 22 03:28	0°≈51'38	29.23586 AU
					3472 Aug 25 10:36	30°☾	
conjunction	3465 Jan 04 23:49	14°☾30'31	1°05'14	direct	3472 Oct 10 11:23	29°☾28'16	
minimum elong	3465 Jan 04 23:49	14°☾30'31	1°05'14		3472 Nov 23 16:30	0°≈	
max. Earth dist.	3465 Jan 04 13:33	14°☾29'33	31.30435 AU	conjunction	3473 Jan 22 02:19	1°≈56'53	0°41'43
retrograde	3465 Apr 17 21:35	16°☾58'20		minimum elong	3473 Jan 22 02:19	1°≈56'53	0°41'44
opposition	3465 Jul 06 06:05	15°☾36'03	1°08'17	max. Earth dist.	3473 Jan 21 21:37	1°≈56'27	31.23099 AU
min. Earth dist.	3465 Jul 06 16:17	15°☾35'21	29.30211 AU	retrograde	3473 May 05 15:30	4°≈25'41	
direct	3465 Sep 25 01:56	14°☾12'15		opposition	3473 Jul 24 10:41	3°≈02'49	0°42'50
				min. Earth dist.	3473 Jul 24 13:55	3°≈02'36	29.22667 AU
conjunction	3466 Jan 07 09:09	16°☾41'17	1°02'34	direct	3473 Oct 12 23:21	1°≈39'08	
minimum elong	3466 Jan 07 09:09	16°☾41'17	1°02'34				
max. Earth dist.	3466 Jan 06 23:44	16°☾40'24	31.29869 AU	conjunction	3474 Jan 24 11:27	4°≈07'43	0°38'28
retrograde	3466 Apr 20 08:03	19°☾09'14		minimum elong	3474 Jan 24 11:27	4°≈07'43	0°38'28
opposition	3466 Jul 08 18:36	17°☾46'54	1°05'23	max. Earth dist.	3474 Jan 24 07:49	4°≈07'23	31.22226 AU
min. Earth dist.	3466 Jul 09 03:23	17°☾46'19	29.29570 AU	retrograde	3474 May 08 02:02	6°≈36'42	
direct	3466 Sep 27 14:06	16°☾23'08		opposition	3474 Jul 26 23:30	5°≈13'48	0°39'19
				min. Earth dist.	3474 Jul 27 02:43	5°≈13'34	29.21842 AU
conjunction	3467 Jan 09 18:32	18°☾52'08	0°59'49	direct	3474 Oct 15 09:37	3°≈50'10	
minimum elong	3467 Jan 09 18:32	18°☾52'08	0°59'50				
max. Earth dist.	3467 Jan 09 08:54	18°☾51'13	31.29159 AU	conjunction	3475 Jan 26 20:46	6°≈18'43	0°35'09
retrograde	3467 Apr 22 20:07	21°☾20'13		minimum elong	3475 Jan 26 20:46	6°≈18'43	0°35'10
opposition	3467 Jul 11 07:13	19°☾57'50	1°02'24	max. Earth dist.	3475 Jan 26 18:36	6°≈18'31	31.21447 AU
min. Earth dist.	3467 Jul 11 16:07	19°☾57'14	29.28794 AU	retrograde	3475 May 10 12:30	8°≈47'52	
direct	3467 Sep 29 23:28	18°☾34'05		opposition	3475 Jul 29 12:07	7°≈24'56	0°35'45
				min. Earth dist.	3475 Jul 29 13:29	7°≈24'51	29.21081 AU
conjunction	3468 Jan 12 04:00	21°☾03'01	0°56'59	direct	3475 Oct 17 21:12	6°≈01'22	
minimum elong	3468 Jan 12 04:00	21°☾03'01	0°56'59				
max. Earth dist.	3468 Jan 11 19:41	21°☾02'14	31.28311 AU	conjunction	3476 Jan 29 06:01	8°≈29'55	0°31'47
retrograde	3468 Apr 24 06:28	23°☾31'13		minimum elong	3476 Jan 29 06:01	8°≈29'55	0°31'47
opposition	3468 Jul 12 19:47	22°☾08'46	0°59'20	max. Earth dist.	3476 Jan 29 03:58	8°≈29'44	31.20704 AU
min. Earth dist.	3468 Jul 13 03:54	22°☾08'13	29.27857 AU	retrograde	3476 May 12 00:46	10°≈59'16	
direct	3468 Oct 01 11:48	20°☾45'01		opposition	3476 Jul 31 00:56	9°≈36'18	0°32'07
				min. Earth dist.	3476 Jul 31 02:05	9°≈36'13	29.20347 AU
conjunction	3469 Jan 13 13:19	23°☾13'53	0°54'05	direct	3476 Oct 19 05:43	8°≈12'47	
minimum elong	3469 Jan 13 13:19	23°☾13'53	0°54'05				
max. Earth dist.	3469 Jan 13 04:29	23°☾13'03	31.27315 AU	conjunction	3477 Jan 30 15:28	10°≈41'19	0°28'22
retrograde	3469 Apr 26 19:15	25°☾42'12		minimum elong	3477 Jan 30 15:28	10°≈41'19	0°28'22
opposition	3469 Jul 15 08:19	24°☾19'39	0°56'11	max. Earth dist.	3477 Jan 30 15:10	10°≈41'18	31.19961 AU
min. Earth dist.	3469 Jul 15 15:50	24°☾19'08	29.26809 AU	retrograde	3477 May 14 11:44	13°≈10'51	
direct	3469 Oct 03 22:51	22°☾55'54		opposition	3477 Aug 02 13:46	11°≈47'51	0°28'27
				min. Earth dist.	3477 Aug 02 13:51	11°≈47'51	29.19576 AU
conjunction	3470 Jan 15 22:43	25°☾24'42	0°51'06	direct	3477 Oct 21 17:31	10°≈24'25	
minimum elong	3470 Jan 15 22:43	25°☾24'42	0°51'05				
max. Earth dist.	3470 Jan 15 15:42	25°☾24'02	31.26229 AU	conjunction	3478 Feb 02 00:54	12°≈52'55	0°24'54
retrograde	3470 Apr 29 06:06	27°☾53'07		minimum elong	3478 Feb 02 00:54	12°≈52'55	0°24'54

max. Earth dist.	3478 Feb 02 00:18	12° \approx 52'52	31.19172 AU	conjunction	3485 Feb 16 20:32	28° \approx 15'37	0°00'-6
	3478 Apr 09 21:23	15° \approx		minimum elong	3485 Feb 16 20:33	28° \approx 15'37	0°00'07
retrograde	3478 May 17 01:38	15° \approx 22'38		behind sun begin	3485 Feb 16 14:22	28° \approx 15'03	
	3478 Jun 24 10:42	15° \approx		behind sun end	3485 Feb 17 02:44	28° \approx 16'10	
opposition	3478 Aug 05 02:47	13° \approx 59'36	0°24'43	max. Earth dist.	3485 Feb 17 01:13	28° \approx 16'01	31.11287 AU
min. Earth dist.	3478 Aug 05 02:09	13° \approx 59'38	29.18757 AU		3485 Apr 08 13:36	0° \approx	
direct	3478 Oct 24 03:45	12° \approx 36'12		retrograde	3485 Jun 01 11:56	0° \approx 46'19	
	3479 Feb 02 08:53	15° \approx			3485 Jul 28 03:17	30° \approx	
				opposition	3485 Aug 20 21:47	29° \approx 22'38	0°-2'-3
conjunction	3479 Feb 04 10:31	15° \approx 04'42	0°21'24	min. Earth dist.	3485 Aug 20 16:07	29° \approx 23'01	29.10755 AU
minimum elong	3479 Feb 04 10:31	15° \approx 04'42	0°21'25	direct	3485 Nov 08 13:45	27° \approx 59'13	
max. Earth dist.	3479 Feb 04 11:36	15° \approx 04'48	31.18297 AU		3486 Feb 07 04:05	0° \approx	
retrograde	3479 May 19 13:30	17° \approx 34'35					
opposition	3479 Aug 07 15:51	16° \approx 11'29	0°20'57	conjunction	3486 Feb 19 06:26	0° \approx 27'23	0°-3'-47
min. Earth dist.	3479 Aug 07 15:04	16° \approx 11'32	29.17820 AU	minimum elong	3486 Feb 19 06:25	0° \approx 27'23	0°03'49
	3479 Sep 29 08:50	15° \approx		behind sun begin	3486 Feb 19 00:05	0° \approx 26'48	
direct	3479 Oct 26 15:50	14° \approx 48'06		behind sun end	3486 Feb 19 12:45	0° \approx 27'57	
	3479 Nov 22 10:06	15° \approx		max. Earth dist.	3486 Feb 19 13:07	0° \approx 27'59	31.10240 AU
				retrograde	3486 Jun 03 23:02	2° \approx 58'15	
conjunction	3480 Feb 06 20:12	17° \approx 16'34	0°17'52	opposition	3486 Aug 23 10:45	1° \approx 34'30	0°-5'-55
minimum elong	3480 Feb 06 20:12	17° \approx 16'34	0°17'52	min. Earth dist.	3486 Aug 23 03:40	1° \approx 34'59	29.09759 AU
max. Earth dist.	3480 Feb 06 20:55	17° \approx 16'38	31.17306 AU	direct	3486 Nov 11 01:40	0° \approx 11'08	
retrograde	3480 May 21 02:34	19° \approx 46'36					
opposition	3480 Aug 09 04:41	18° \approx 23'26	0°17'10	conjunction	3487 Feb 21 16:05	2° \approx 39'16	0°-7'-23
min. Earth dist.	3480 Aug 09 02:39	18° \approx 23'34	29.16763 AU	minimum elong	3487 Feb 21 16:05	2° \approx 39'16	0°07'24
direct	3480 Oct 28 02:36	17° \approx 00'04		behind sun begin	3487 Feb 21 10:13	2° \approx 38'44	
				behind sun end	3487 Feb 21 21:58	2° \approx 39'48	
conjunction	3481 Feb 08 06:00	19° \approx 28'30	0°14'19	max. Earth dist.	3487 Feb 21 22:47	2° \approx 39'53	31.09300 AU
minimum elong	3481 Feb 08 06:00	19° \approx 28'30	0°14'20	retrograde	3487 Jun 06 12:39	5° \approx 10'20	
behind sun begin	3481 Feb 08 02:52	19° \approx 28'13		opposition	3487 Aug 25 23:47	3° \approx 46'32	0°-9'-47
behind sun end	3481 Feb 08 09:07	19° \approx 28'47		min. Earth dist.	3487 Aug 25 15:44	3° \approx 47'05	29.08867 AU
max. Earth dist.	3481 Feb 08 07:45	19° \approx 28'39	31.16179 AU	direct	3487 Nov 13 11:13	2° \approx 23'13	
retrograde	3481 May 23 13:53	21° \approx 58'39					
opposition	3481 Aug 11 17:51	20° \approx 35'23	0°13'21	conjunction	3488 Feb 24 02:07	4° \approx 51'22	0°-10'-59
min. Earth dist.	3481 Aug 11 16:06	20° \approx 35'30	29.15578 AU	minimum elong	3488 Feb 24 02:07	4° \approx 51'22	0°11'00
direct	3481 Oct 30 15:46	19° \approx 12'01		behind sun begin	3488 Feb 23 21:15	4° \approx 50'55	
				behind sun end	3488 Feb 24 06:59	4° \approx 51'48	
conjunction	3482 Feb 10 15:35	21° \approx 40'22	0°10'45	max. Earth dist.	3488 Feb 24 10:42	4° \approx 52'10	31.08435 AU
minimum elong	3482 Feb 10 15:35	21° \approx 40'23	0°10'45	retrograde	3488 Jun 08 00:32	7° \approx 22'37	
behind sun begin	3482 Feb 10 10:38	21° \approx 39'56		opposition	3488 Aug 27 12:44	5° \approx 58'47	0°-13'-38
behind sun end	3482 Feb 10 20:33	21° \approx 40'49		min. Earth dist.	3488 Aug 27 04:18	5° \approx 59'22	29.08025 AU
max. Earth dist.	3482 Feb 10 17:52	21° \approx 40'34	31.14961 AU	direct	3488 Nov 14 22:20	4° \approx 35'31	
retrograde	3482 May 26 02:53	24° \approx 10'39					
opposition	3482 Aug 14 06:51	22° \approx 47'17	0°09'31	conjunction	3489 Feb 25 12:05	7° \approx 03'42	0°-14'-34
min. Earth dist.	3482 Aug 14 03:19	22° \approx 47'31	29.14323 AU	minimum elong	3489 Feb 25 12:04	7° \approx 03'42	0°14'34
direct	3482 Nov 02 04:43	21° \approx 23'53		behind sun begin	3489 Feb 25 09:09	7° \approx 03'26	
				behind sun end	3489 Feb 25 14:59	7° \approx 03'58	
conjunction	3483 Feb 13 01:16	23° \approx 52'11	0°07'10	max. Earth dist.	3489 Feb 25 20:44	7° \approx 04'30	31.07619 AU
minimum elong	3483 Feb 13 01:16	23° \approx 52'11	0°07'11	retrograde	3489 Jun 10 14:42	9° \approx 35'09	
behind sun begin	3483 Feb 12 19:21	23° \approx 51'39		opposition	3489 Aug 30 01:51	8° \approx 11'18	0°-17'-28
behind sun end	3483 Feb 13 07:10	23° \approx 52'43		min. Earth dist.	3489 Aug 29 15:56	8° \approx 11'58	29.07217 AU
max. Earth dist.	3483 Feb 13 04:14	23° \approx 52'26	31.13688 AU	direct	3489 Nov 17 08:34	6° \approx 48'06	
retrograde	3483 May 28 13:27	26° \approx 22'35					
opposition	3483 Aug 16 19:51	24° \approx 59'05	0°05'40	conjunction	3490 Feb 27 22:08	9° \approx 16'17	0°-18'-9
min. Earth dist.	3483 Aug 16 16:33	24° \approx 59'19	29.13064 AU	minimum elong	3490 Feb 27 22:08	9° \approx 16'17	0°18'10
direct	3483 Nov 04 15:45	23° \approx 35'41		max. Earth dist.	3490 Feb 28 07:59	9° \approx 17'13	31.06794 AU
				retrograde	3490 Jun 13 03:30	11° \approx 47'57	
conjunction	3484 Feb 15 10:59	26° \approx 03'54	0°03'35	opposition	3490 Sep 01 15:10	10° \approx 24'04	0°-21'-17
minimum elong	3484 Feb 15 10:59	26° \approx 03'54	0°03'34	min. Earth dist.	3490 Sep 01 05:30	10° \approx 24'43	29.06377 AU
behind sun begin	3484 Feb 15 04:39	26° \approx 03'20		direct	3490 Nov 19 21:02	9° \approx 00'56	
behind sun end	3484 Feb 15 17:20	26° \approx 04'29					
max. Earth dist.	3484 Feb 15 15:29	26° \approx 04'18	31.12452 AU	conjunction	3491 Mar 02 08:29	11° \approx 29'09	0°-21'-42
retrograde	3484 May 29 23:55	28° \approx 34'27		minimum elong	3491 Mar 02 08:29	11° \approx 29'09	0°21'42
opposition	3484 Aug 18 08:44	27° \approx 10'51	0°01'48	max. Earth dist.	3491 Mar 02 18:48	11° \approx 30'07	31.05929 AU
min. Earth dist.	3484 Aug 18 03:32	27° \approx 11'12	29.11857 AU	retrograde	3491 Jun 15 18:09	14° \approx 00'59	
direct	3484 Nov 06 04:13	25° \approx 47'26		opposition	3491 Sep 04 04:11	12° \approx 37'04	0°-25'-5
desc. node	3485 Feb 05 16:59	27° \approx 50'21		min. Earth dist.	3491 Sep 03 17:03	12° \approx 37'50	29.05469 AU

direct	3491 Nov 22 09:29	11° ✕ 13'58			3500 Feb 08 19:19	0° Υ	
conjunction	3492 Mar 03 18:55	13° ✕ 42'13	0°-25'-13	conjunction	3500 Mar 22 08:01	1° Υ 28'25	0°-51'-41
minimum elong	3492 Mar 03 18:55	13° ✕ 42'13	0°25'15	minimum elong	3500 Mar 22 08:01	1° Υ 28'25	0°51'42
max. Earth dist.	3492 Mar 04 05:23	13° ✕ 43'12	31.04956 AU	max. Earth dist.	3500 Mar 23 00:12	1° Υ 29'57	30.95712 AU
retrograde	3492 Jun 17 05:58	16° ✕ 14'15		retrograde	3500 Jul 06 11:12	4° Υ 01'34	
opposition	3492 Sep 05 17:32	14° ✕ 50'17	0°-28'-50	min. Earth dist.	3500 Sep 24 09:28	2° Υ 38'06	28.95321 AU
min. Earth dist.	3492 Sep 05 07:03	14° ✕ 51'00	29.04443 AU	opposition	3500 Sep 25 02:23	2° Υ 36'56	0°-56'-54
direct	3492 Nov 23 20:33	13° ✕ 27'13		direct	3500 Dec 12 16:08	1° Υ 13'47	
conjunction	3493 Mar 06 05:26	15° ✕ 55'27	0°-28'-43	conjunction	3501 Mar 24 18:49	3° Υ 41'57	0°-54'-42
minimum elong	3493 Mar 06 05:26	15° ✕ 55'27	0°28'43	minimum elong	3501 Mar 24 18:49	3° Υ 41'57	0°54'43
max. Earth dist.	3493 Mar 06 16:57	15° ✕ 56'32	31.03865 AU	max. Earth dist.	3501 Mar 25 11:29	3° Υ 43'32	30.94871 AU
retrograde	3493 Jun 19 17:48	18° ✕ 27'38		retrograde	3501 Jul 08 23:57	6° Υ 15'15	
opposition	3493 Sep 08 06:46	17° ✕ 03'36	0°-32'-33	opposition	3501 Sep 27 15:34	4° Υ 50'35	-1°00'-5
min. Earth dist.	3493 Sep 07 18:56	17° ✕ 04'24	29.03282 AU	min. Earth dist.	3501 Sep 26 23:05	4° Υ 51'43	28.94522 AU
direct	3493 Nov 26 09:41	15° ✕ 40'32		direct	3501 Dec 15 03:06	3° Υ 27'27	
conjunction	3494 Mar 08 15:57	18° ✕ 08'45	0°-32'-10	conjunction	3502 Mar 27 06:00	5° Υ 55'39	0°-57'-39
minimum elong	3494 Mar 08 15:56	18° ✕ 08'45	0°32'11	minimum elong	3502 Mar 27 05:59	5° Υ 55'39	0°57'40
max. Earth dist.	3494 Mar 09 03:00	18° ✕ 09'48	31.02649 AU	max. Earth dist.	3502 Mar 27 23:57	5° Υ 57'21	30.94096 AU
retrograde	3494 Jun 22 06:44	20° ✕ 41'05		retrograde	3502 Jul 11 13:39	8° Υ 29'06	
opposition	3494 Sep 10 20:05	19° ✕ 16'57	0°-36'-13	min. Earth dist.	3502 Sep 29 10:42	7° Υ 05'37	28.93755 AU
min. Earth dist.	3494 Sep 10 08:26	19° ✕ 17'45	29.02031 AU	opposition	3502 Sep 30 04:31	7° Υ 04'24	-1°-3'-11
direct	3494 Nov 28 20:03	17° ✕ 53'52		direct	3502 Dec 17 16:20	5° Υ 41'18	
conjunction	3495 Mar 11 02:35	20° ✕ 22'03	0°-35'-34	conjunction	3503 Mar 29 17:12	8° Υ 09'33	-1°00'-30
minimum elong	3495 Mar 11 02:34	20° ✕ 22'03	0°35'34	minimum elong	3503 Mar 29 17:12	8° Υ 09'33	1°00'31
max. Earth dist.	3495 Mar 11 15:13	20° ✕ 23'15	31.01363 AU	max. Earth dist.	3503 Mar 30 10:38	8° Υ 11'12	30.93320 AU
retrograde	3495 Jun 24 17:40	22° ✕ 54'31		retrograde	3503 Jul 14 03:44	10° Υ 43'09	
opposition	3495 Sep 13 09:12	21° ✕ 30'16	0°-39'-49	opposition	3503 Oct 02 17:39	9° Υ 18'25	-1°-6'-12
min. Earth dist.	3495 Sep 12 20:34	21° ✕ 31'08	29.00723 AU	min. Earth dist.	3503 Oct 02 00:16	9° Υ 19'37	28.92972 AU
direct	3495 Dec 01 08:53	20° ✕ 07'09		direct	3503 Dec 20 03:09	7° Υ 55'21	
conjunction	3496 Mar 12 13:05	22° ✕ 35'18	0°-38'-54	conjunction	3504 Mar 31 04:42	10° Υ 23'37	-1°-3'-16
minimum elong	3496 Mar 12 13:05	22° ✕ 35'18	0°38'56	minimum elong	3504 Mar 31 04:42	10° Υ 23'37	1°03'17
max. Earth dist.	3496 Mar 13 01:24	22° ✕ 36'28	31.00059 AU	max. Earth dist.	3504 Mar 31 23:25	10° Υ 25'24	30.92496 AU
retrograde	3496 Jun 26 06:19	25° ✕ 07'53		retrograde	3504 Jul 15 15:17	12° Υ 57'22	
opposition	3496 Sep 14 22:14	23° ✕ 43'33	0°-43'-22	opposition	3504 Oct 04 06:38	11° Υ 32'36	-1°-9'-6
min. Earth dist.	3496 Sep 14 08:57	23° ✕ 44'27	28.99449 AU	min. Earth dist.	3504 Oct 03 12:36	11° Υ 33'50	28.92106 AU
direct	3496 Dec 02 18:45	22° ✕ 20'24		direct	3504 Dec 21 15:51	10° Υ 09'32	
conjunction	3497 Mar 14 23:47	24° ✕ 48'32	0°-42'-12	conjunction	3505 Apr 02 16:13	12° Υ 37'50	-1°-5'-56
minimum elong	3497 Mar 14 23:47	24° ✕ 48'32	0°42'12	minimum elong	3505 Apr 02 16:12	12° Υ 37'50	1°05'57
max. Earth dist.	3497 Mar 15 13:55	24° ✕ 49'52	30.98807 AU	max. Earth dist.	3505 Apr 03 10:02	12° Υ 39'32	30.91587 AU
retrograde	3497 Jun 28 17:41	27° ✕ 21'15		retrograde	3505 Jul 18 04:44	15° Υ 11'43	
opposition	3497 Sep 17 11:23	25° ✕ 56'48	0°-46'-52	opposition	3505 Oct 06 19:49	13° Υ 46'53	-1°-11'-54
min. Earth dist.	3497 Sep 16 21:36	25° ✕ 57'45	28.98247 AU	min. Earth dist.	3505 Oct 06 01:43	13° Υ 48'08	28.91154 AU
direct	3497 Dec 05 05:44	24° ✕ 33'38		direct	3505 Dec 24 02:10	12° Υ 23'49	
conjunction	3498 Mar 17 10:19	27° ✕ 01'45	0°-45'-26	conjunction	3506 Apr 05 03:52	14° Υ 52'08	-1°-8'-31
minimum elong	3498 Mar 17 10:19	27° ✕ 01'45	0°45'27	minimum elong	3506 Apr 05 03:52	14° Υ 52'08	1°08'32
max. Earth dist.	3498 Mar 18 00:37	27° ✕ 03'06	30.97665 AU	max. Earth dist.	3506 Apr 05 22:52	14° Υ 53'56	30.90571 AU
retrograde	3498 Jul 01 07:48	29° ✕ 34'37		retrograde	3506 Jul 20 16:30	17° Υ 26'07	
min. Earth dist.	3498 Sep 19 09:10	28° ✕ 11'08	28.97166 AU	opposition	3506 Oct 09 08:55	16° Υ 01'13	-1°-14'-36
opposition	3498 Sep 20 00:27	28° ✕ 10'05	0°-50'-17	min. Earth dist.	3506 Oct 08 14:58	16° Υ 02'28	28.90090 AU
direct	3498 Dec 07 16:16	26° ✕ 46'55		direct	3506 Dec 26 13:42	14° Υ 38'07	
conjunction	3499 Mar 19 21:08	29° ✕ 15'02	0°-48'-35	conjunction	3507 Apr 07 15:33	17° Υ 06'26	-1°-10'-59
minimum elong	3499 Mar 19 21:08	29° ✕ 15'02	0°48'35	minimum elong	3507 Apr 07 15:33	17° Υ 06'26	1°10'59
max. Earth dist.	3499 Mar 20 12:38	29° ✕ 16'30	30.96627 AU	max. Earth dist.	3507 Apr 08 10:02	17° Υ 08'11	30.89480 AU
	3499 Apr 08 21:29	0° Υ		retrograde	3507 Jul 23 06:24	19° Υ 40'30	
retrograde	3499 Jul 03 20:39	1° Υ 48'02		opposition	3507 Oct 11 21:44	18° Υ 15'32	-1°-17'-11
opposition	3499 Sep 22 13:24	0° Υ 23'27	0°-53'-38	min. Earth dist.	3507 Oct 11 03:01	18° Υ 16'49	28.88981 AU
min. Earth dist.	3499 Sep 21 22:14	0° Υ 24'30	28.96192 AU	direct	3507 Dec 29 00:39	16° Υ 52'22	
	3499 Oct 06 23:30	30° ✕					
direct	3499 Dec 10 04:14	29° ✕ 00'17		conjunction	3508 Apr 09 03:17	19° Υ 20'43	-1°-13'-20

minimum elong	3508 Apr 09 03:17	19° Υ 20'43	1°13'22	minimum elong	3516 Apr 27 03:26	7° \mathcal{B} 16'55	1°28'03
max. Earth dist.	3508 Apr 09 22:30	19° Υ 22'32	30.88355 AU	max. Earth dist.	3516 Apr 28 01:35	7° \mathcal{B} 19'01	30.83097 AU
retrograde	3508 Jul 24 18:45	21° Υ 54'52		retrograde	3516 Aug 12 07:04	9° \mathcal{B} 51'48	
opposition	3508 Oct 13 10:41	20° Υ 29'48	-1°-19'-39	opposition	3516 Oct 31 16:05	8° \mathcal{B} 26'33	-1°-34'-49
min. Earth dist.	3508 Oct 12 16:25	20° Υ 31'04	28.87877 AU	min. Earth dist.	3516 Oct 30 18:34	8° \mathcal{B} 28'03	28.83008 AU
direct	3508 Dec 30 12:31	19° Υ 06'36		direct	3517 Jan 17 09:41	7° \mathcal{B} 03'22	
conjunction	3509 Apr 11 14:53	21° Υ 34'57	-1°-15'-36	conjunction	3517 Apr 29 15:59	9° \mathcal{B} 32'08	-1°-29'-17
minimum elong	3509 Apr 11 14:52	21° Υ 34'57	1°15'36	minimum elong	3517 Apr 29 15:59	9° \mathcal{B} 32'08	1°29'17
max. Earth dist.	3509 Apr 12 10:36	21° Υ 36'49	30.87287 AU	max. Earth dist.	3517 Apr 30 14:30	9° \mathcal{B} 34'16	30.82706 AU
retrograde	3509 Jul 27 08:56	24° Υ 09'11		retrograde	3517 Aug 14 18:54	12° \mathcal{B} 07'05	
opposition	3509 Oct 15 23:29	22° Υ 44'03	-1°-22'00	min. Earth dist.	3517 Nov 02 08:16	10° \mathcal{B} 43'16	28.82585 AU
min. Earth dist.	3509 Oct 15 03:42	22° Υ 45'25	28.86854 AU	opposition	3517 Nov 03 04:51	10° \mathcal{B} 41'50	-1°-36'-6
direct	3510 Jan 02 00:21	21° Υ 20'48		direct	3518 Jan 19 20:50	9° \mathcal{B} 18'37	
conjunction	3510 Apr 14 02:39	23° Υ 49'11	-1°-17'-44	conjunction	3518 May 02 04:50	11° \mathcal{B} 47'26	-1°-30'-24
minimum elong	3510 Apr 14 02:39	23° Υ 49'11	1°17'46	minimum elong	3518 May 02 04:50	11° \mathcal{B} 47'26	1°30'26
max. Earth dist.	3510 Apr 14 22:38	23° Υ 51'04	30.86309 AU	max. Earth dist.	3518 May 03 02:58	11° \mathcal{B} 49'32	30.82247 AU
retrograde	3510 Jul 29 22:01	26° Υ 23'31		retrograde	3518 Aug 17 09:16	14° \mathcal{B} 22'25	
opposition	3510 Oct 18 12:15	24° Υ 58'18	-1°-24'-14	opposition	3518 Nov 05 17:18	12° \mathcal{B} 57'08	-1°-37'-14
min. Earth dist.	3510 Oct 17 17:03	24° Υ 59'38	28.85954 AU	min. Earth dist.	3518 Nov 04 20:00	12° \mathcal{B} 58'37	28.82078 AU
direct	3511 Jan 04 11:24	23° Υ 35'03		direct	3519 Jan 22 08:05	11° \mathcal{B} 33'52	
conjunction	3511 Apr 16 14:36	26° Υ 03'27	-1°-19'-46	conjunction	3519 May 04 17:41	14° \mathcal{B} 02'43	-1°-31'-23
minimum elong	3511 Apr 16 14:36	26° Υ 03'27	1°19'46	minimum elong	3519 May 04 17:41	14° \mathcal{B} 02'43	1°31'24
max. Earth dist.	3511 Apr 17 11:48	26° Υ 05'28	30.85477 AU	max. Earth dist.	3519 May 05 15:18	14° \mathcal{B} 04'46	30.81692 AU
retrograde	3511 Aug 01 12:35	28° Υ 37'52			3519 May 30 13:03	15° \mathcal{B}	
min. Earth dist.	3511 Oct 20 04:15	27° Υ 14'03	28.85191 AU	retrograde	3519 Aug 19 22:06	16° \mathcal{B} 37'43	
opposition	3511 Oct 21 00:52	27° Υ 12'38	-1°-26'-20	min. Earth dist.	3519 Nov 07 09:52	15° \mathcal{B} 13'46	28.81497 AU
direct	3512 Jan 07 01:01	25° Υ 49'22		opposition	3519 Nov 08 05:54	15° \mathcal{B} 12'22	-1°-38'-13
conjunction	3512 Apr 18 02:23	28° Υ 17'49	-1°-21'-40		3519 Nov 15 15:30	15° $\mathcal{R}\mathcal{B}$	
minimum elong	3512 Apr 18 02:23	28° Υ 17'49	1°21'41	direct	3520 Jan 24 19:41	13° \mathcal{B} 49'03	
max. Earth dist.	3512 Apr 18 23:11	28° Υ 19'48	30.84780 AU		3520 Mar 31 05:36	15° \mathcal{B}	
retrograde	3512 Jun 06 03:51	0° \mathcal{B}		conjunction	3520 May 06 06:32	16° \mathcal{B} 17'55	-1°-32'-14
	3512 Aug 03 02:46	0° \mathcal{B} 52'20		minimum elong	3520 May 06 06:32	16° \mathcal{B} 17'55	1°32'16
	3512 Oct 02 06:32	30° $\mathcal{R}\Upsilon$		max. Earth dist.	3520 May 07 04:43	16° \mathcal{B} 20'01	30.81098 AU
opposition	3512 Oct 22 13:36	29° Υ 27'04	-1°-28'-18	retrograde	3520 Aug 21 12:14	18° \mathcal{B} 52'54	
min. Earth dist.	3512 Oct 21 17:16	29° Υ 28'29	28.84577 AU	opposition	3520 Nov 09 18:15	17° \mathcal{B} 27'30	-1°-39'-2
direct	3513 Jan 08 12:10	28° Υ 03'48		min. Earth dist.	3520 Nov 08 21:23	17° \mathcal{B} 28'58	28.80895 AU
	3513 Apr 06 07:01	0° \mathcal{B}		direct	3521 Jan 26 09:30	16° \mathcal{B} 04'07	
conjunction	3513 Apr 20 14:30	0° \mathcal{B} 32'19	-1°-23'-27	conjunction	3521 May 08 19:19	18° \mathcal{B} 33'01	-1°-32'-57
minimum elong	3513 Apr 20 14:30	0° \mathcal{B} 32'19	1°23'27	minimum elong	3521 May 08 19:19	18° \mathcal{B} 33'01	1°32'58
max. Earth dist.	3513 Apr 21 12:49	0° \mathcal{B} 34'26	30.84232 AU	max. Earth dist.	3521 May 09 16:38	18° \mathcal{B} 35'01	30.80510 AU
retrograde	3513 Aug 05 14:50	3° \mathcal{B} 06'56		retrograde	3521 Aug 24 01:56	21° \mathcal{B} 07'59	
min. Earth dist.	3513 Oct 24 04:58	1° \mathcal{B} 43'08	28.84089 AU	min. Earth dist.	3521 Nov 11 10:36	19° \mathcal{B} 43'56	28.80347 AU
opposition	3513 Oct 25 02:14	1° \mathcal{B} 41'39	-1°-30'-9	opposition	3521 Nov 12 06:38	19° \mathcal{B} 42'32	-1°-39'-43
direct	3514 Jan 11 00:41	0° \mathcal{B} 18'25		direct	3522 Jan 28 20:55	18° \mathcal{B} 19'05	
conjunction	3514 Apr 23 02:32	2° \mathcal{B} 46'59	-1°-25'-6	conjunction	3522 May 11 08:19	20° \mathcal{B} 48'00	-1°-33'-31
minimum elong	3514 Apr 23 02:32	2° \mathcal{B} 46'59	1°25'08	minimum elong	3522 May 11 08:19	20° \mathcal{B} 48'00	1°33'33
max. Earth dist.	3514 Apr 24 00:11	2° \mathcal{B} 49'03	30.83802 AU	max. Earth dist.	3522 May 12 06:45	20° \mathcal{B} 50'07	30.79999 AU
retrograde	3514 Aug 08 05:00	5° \mathcal{B} 21'42		retrograde	3522 Aug 26 14:54	23° \mathcal{B} 22'57	
opposition	3514 Oct 27 14:56	3° \mathcal{B} 56'26	-1°-31'-51	opposition	3522 Nov 14 18:50	21° \mathcal{B} 57'28	-1°-40'-15
min. Earth dist.	3514 Oct 26 17:36	3° \mathcal{B} 57'55	28.83707 AU	min. Earth dist.	3522 Nov 13 22:11	21° \mathcal{B} 58'55	28.79881 AU
direct	3515 Jan 13 11:20	2° \mathcal{B} 33'13		direct	3523 Jan 31 10:09	20° \mathcal{B} 33'58	
conjunction	3515 Apr 25 14:59	5° \mathcal{B} 01'52	-1°-26'-37	conjunction	3523 May 13 21:15	23° \mathcal{B} 02'55	-1°-33'-57
minimum elong	3515 Apr 25 14:59	5° \mathcal{B} 01'52	1°26'38	minimum elong	3523 May 13 21:15	23° \mathcal{B} 02'55	1°33'57
max. Earth dist.	3515 Apr 26 13:51	5° \mathcal{B} 04'02	30.83437 AU	max. Earth dist.	3523 May 14 18:38	23° \mathcal{B} 04'56	30.79594 AU
retrograde	3515 Aug 10 17:25	7° \mathcal{B} 36'39		retrograde	3523 Aug 29 05:31	25° \mathcal{B} 37'52	
min. Earth dist.	3515 Oct 29 06:22	6° \mathcal{B} 12'53	28.83357 AU	min. Earth dist.	3523 Nov 16 10:26	24° \mathcal{B} 13'48	28.79550 AU
opposition	3515 Oct 30 03:26	6° \mathcal{B} 11'24	-1°-33'-24	opposition	3523 Nov 17 06:56	24° \mathcal{B} 12'21	-1°-40'-38
direct	3516 Jan 15 22:47	4° \mathcal{B} 48'13		direct	3524 Feb 02 21:40	22° \mathcal{B} 48'49	
conjunction	3516 Apr 27 03:26	7° \mathcal{B} 16'55	-1°-28'-1	conjunction	3524 May 15 10:21	25° \mathcal{B} 17'50	-1°-34'-13

minimum elong	3524 May 15 10:21	25° ♄ 17'50	1°34'15	conjunction	3532 Jun 02 22:19	13° ♊ 21'28	-1°-31'-15
max. Earth dist.	3524 May 16 08:55	25° ♄ 19'58	30.79326 AU	minimum elong	3532 Jun 02 22:19	13° ♊ 21'28	1°31'16
retrograde	3524 Aug 30 17:38	27° ♄ 52'46		max. Earth dist.	3532 Jun 03 17:04	13° ♊ 23'14	30.79726 AU
opposition	3524 Nov 18 19:06	26° ♄ 27'16	-1°-40'-51	retrograde	3532 Sep 18 06:57	15° ♊ 56'19	
min. Earth dist.	3524 Nov 17 22:38	26° ♄ 28'42	28.79354 AU	opposition	3532 Dec 06 19:08	14° ♊ 31'05	-1°-37'-2
direct	3525 Feb 04 09:52	25° ♄ 03'43		min. Earth dist.	3532 Dec 06 01:38	14° ♊ 32'19	28.79763 AU
				direct	3533 Feb 22 07:29	13° ♊ 07'24	
conjunction	3525 May 17 23:17	27° ♄ 32'47	-1°-34'-22				
minimum elong	3525 May 17 23:17	27° ♄ 32'47	1°34'22	conjunction	3533 Jun 05 12:06	15° ♊ 37'06	-1°-30'-14
max. Earth dist.	3525 May 18 21:11	27° ♄ 34'51	30.79215 AU	minimum elong	3533 Jun 05 12:06	15° ♊ 37'06	1°30'15
	3525 Aug 11 13:20	0° ♊		max. Earth dist.	3533 Jun 06 07:28	15° ♊ 38'55	30.79610 AU
retrograde	3525 Sep 02 07:21	0° ♊ 07'44		retrograde	3533 Sep 20 18:39	18° ♊ 11'52	
	3525 Sep 24 04:07	30° ♄		opposition	3533 Dec 09 06:51	16° ♊ 46'37	-1°-35'-53
min. Earth dist.	3525 Nov 20 10:16	28° ♄ 43'44	28.79315 AU	min. Earth dist.	3533 Dec 08 13:59	16° ♊ 47'48	28.79641 AU
opposition	3525 Nov 21 07:14	28° ♄ 42'16	-1°-40'-55	direct	3534 Feb 24 20:41	15° ♊ 22'52	
direct	3526 Feb 06 20:55	27° ♄ 18'42					
				conjunction	3534 Jun 08 01:54	17° ♊ 52'35	-1°-29'-5
conjunction	3526 May 20 12:33	29° ♄ 47'51	-1°-34'-21	minimum elong	3534 Jun 08 01:54	17° ♊ 52'35	1°29'06
minimum elong	3526 May 20 12:34	29° ♄ 47'51	1°34'23	max. Earth dist.	3534 Jun 08 19:55	17° ♊ 54'17	30.79515 AU
max. Earth dist.	3526 May 21 11:01	29° ♄ 49'58	30.79232 AU	retrograde	3534 Sep 23 08:34	20° ♊ 27'15	
	3526 May 25 21:17	0° ♊		opposition	3534 Dec 11 18:21	19° ♊ 01'59	-1°-34'-35
retrograde	3526 Sep 04 19:04	2° ♊ 22'50		min. Earth dist.	3534 Dec 11 01:31	19° ♊ 03'11	28.79572 AU
opposition	3526 Nov 23 19:15	0° ♊ 57'24	-1°-40'-50	direct	3535 Feb 27 08:34	17° ♊ 38'09	
min. Earth dist.	3526 Nov 22 23:10	0° ♊ 58'49	28.79389 AU				
	3526 Dec 31 06:42	30° ♄		conjunction	3535 Jun 10 15:47	20° ♊ 07'55	-1°-27'-48
direct	3527 Feb 09 07:35	29° ♄ 33'51		minimum elong	3535 Jun 10 15:47	20° ♊ 07'55	1°27'49
	3527 Mar 20 11:34	0° ♊		max. Earth dist.	3535 Jun 11 10:06	20° ♊ 09'38	30.79476 AU
				retrograde	3535 Sep 25 20:23	22° ♊ 42'29	
conjunction	3527 May 23 01:56	2° ♊ 03'05	-1°-34'-12	opposition	3535 Dec 14 05:56	21° ♊ 17'13	-1°-33'-9
minimum elong	3527 May 23 01:56	2° ♊ 03'05	1°34'13	min. Earth dist.	3535 Dec 13 14:08	21° ♊ 18'20	28.79583 AU
max. Earth dist.	3527 May 24 00:00	2° ♊ 05'10	30.79365 AU	direct	3536 Feb 29 20:11	19° ♊ 53'19	
retrograde	3527 Sep 07 09:37	4° ♊ 38'05					
min. Earth dist.	3527 Nov 25 10:26	3° ♊ 14'11	28.79550 AU	conjunction	3536 Jun 12 05:25	22° ♊ 23'07	-1°-26'-23
opposition	3527 Nov 26 07:14	3° ♊ 12'43	-1°-40'-35	minimum elong	3536 Jun 12 05:25	22° ♊ 23'07	1°26'25
direct	3528 Feb 11 18:14	1° ♊ 49'11		max. Earth dist.	3536 Jun 12 23:06	22° ♊ 24'46	30.79555 AU
				retrograde	3536 Sep 27 09:53	24° ♊ 57'35	
conjunction	3528 May 24 15:15	4° ♊ 18'31	-1°-33'-54	opposition	3536 Dec 15 17:22	23° ♊ 32'19	-1°-31'-33
minimum elong	3528 May 24 15:15	4° ♊ 18'31	1°33'55	min. Earth dist.	3536 Dec 15 00:51	23° ♊ 33'29	28.79722 AU
max. Earth dist.	3528 May 25 12:56	4° ♊ 20'34	30.79536 AU	direct	3537 Mar 03 07:42	22° ♊ 08'22	
retrograde	3528 Sep 08 21:58	6° ♊ 53'32					
opposition	3528 Nov 27 19:23	5° ♊ 28'14	-1°-40'-11	conjunction	3537 Jun 14 19:16	24° ♊ 38'12	-1°-24'-50
min. Earth dist.	3528 Nov 26 23:59	5° ♊ 29'36	28.79730 AU	minimum elong	3537 Jun 14 19:16	24° ♊ 38'12	1°24'51
direct	3529 Feb 13 05:16	4° ♊ 04'42		max. Earth dist.	3537 Jun 15 12:36	24° ♊ 39'50	30.79760 AU
				retrograde	3537 Sep 29 20:29	27° ♊ 12'35	
conjunction	3529 May 27 04:57	6° ♊ 34'09	-1°-33'-27	opposition	3537 Dec 18 04:48	25° ♊ 47'21	-1°-29'-50
minimum elong	3529 May 27 04:57	6° ♊ 34'09	1°33'27	min. Earth dist.	3537 Dec 17 13:34	25° ♊ 48'26	28.80003 AU
max. Earth dist.	3529 May 28 02:43	6° ♊ 36'12	30.79710 AU	direct	3538 Mar 05 18:36	24° ♊ 23'21	
retrograde	3529 Sep 11 12:11	9° ♊ 09'10					
min. Earth dist.	3529 Nov 29 11:33	7° ♊ 45'18	28.79869 AU	conjunction	3538 Jun 17 09:14	26° ♊ 53'15	-1°-23'-10
opposition	3529 Nov 30 07:18	7° ♊ 43'54	-1°-39'-37	minimum elong	3538 Jun 17 09:14	26° ♊ 53'15	1°23'11
direct	3530 Feb 15 18:18	6° ♊ 20'22		max. Earth dist.	3538 Jun 18 02:39	26° ♊ 54'53	30.80122 AU
				retrograde	3538 Oct 02 09:28	29° ♊ 27'31	
conjunction	3530 May 29 18:40	8° ♊ 49'54	-1°-32'-51	opposition	3538 Dec 20 16:06	28° ♊ 02'21	-1°-27'-58
minimum elong	3530 May 29 18:41	8° ♊ 49'54	1°32'52	min. Earth dist.	3538 Dec 20 00:17	28° ♊ 03'28	28.80421 AU
max. Earth dist.	3530 May 30 14:56	8° ♊ 51'49	30.79806 AU	direct	3539 Mar 08 06:42	26° ♊ 38'19	
retrograde	3530 Sep 14 01:59	11° ♊ 24'54					
opposition	3530 Dec 02 19:25	9° ♊ 59'40	-1°-38'-55	conjunction	3539 Jun 19 23:05	29° ♊ 08'17	-1°-21'-21
min. Earth dist.	3530 Dec 02 01:08	10° ♊ 00'57	28.79921 AU	minimum elong	3539 Jun 19 23:05	29° ♊ 08'17	1°21'22
direct	3531 Feb 18 05:23	8° ♊ 36'06		max. Earth dist.	3539 Jun 20 15:24	29° ♊ 09'49	30.80603 AU
					3539 Jul 13 08:28	0° ♊	
conjunction	3531 Jun 01 08:35	11° ♊ 05'43	-1°-32'-7	retrograde	3539 Oct 04 22:08	1° ♊ 42'29	
minimum elong	3531 Jun 01 08:35	11° ♊ 05'43	1°32'07	opposition	3539 Dec 23 03:27	0° ♊ 17'23	-1°-25'-58
max. Earth dist.	3531 Jun 02 05:06	11° ♊ 07'38	30.79806 AU	min. Earth dist.	3539 Dec 22 12:55	0° ♊ 18'24	28.80959 AU
retrograde	3531 Sep 16 15:37	13° ♊ 40'39			3540 Jan 02 10:42	30° ♄	
opposition	3531 Dec 05 07:14	12° ♊ 15'25	-1°-38'-3	direct	3540 Mar 09 16:47	28° ♊ 53'19	
min. Earth dist.	3531 Dec 04 12:59	12° ♊ 16'42	28.79865 AU		3540 May 13 08:42	0° ♊	
direct	3532 Feb 20 18:53	10° ♊ 51'48					

conjunction	3540 Jun 21 13:10	1°☾23'24	-1°-19'-25	retrograde	3548 Oct 24 16:10	21°☾56'59	
minimum elong	3540 Jun 21 13:10	1°☾23'24	1°19'27	opposition	3549 Jan 11 07:18	20°☾32'17	-1°-2'-31
max. Earth dist.	3540 Jun 22 05:55	1°☾24'58	30.81189 AU	min. Earth dist.	3549 Jan 10 23:17	20°☾32'51	28.85200 AU
retrograde	3540 Oct 06 11:09	3°☾57'31		direct	3549 Mar 30 04:09	19°☾07'49	
opposition	3540 Dec 24 14:41	2°☾32'29	-1°-23'-49				
min. Earth dist.	3540 Dec 24 00:08	2°☾33'30	28.81561 AU	conjunction	3549 Jul 12 20:32	21°☾38'25	0°-57'-2
direct	3541 Mar 12 05:58	1°☾08'25		minimum elong	3549 Jul 12 20:33	21°☾38'25	0°57'03
				max. Earth dist.	3549 Jul 13 06:05	21°☾39'18	30.85476 AU
conjunction	3541 Jun 24 03:09	3°☾38'35	-1°-17'-22	retrograde	3549 Oct 27 03:40	24°☾11'22	
minimum elong	3541 Jun 24 03:09	3°☾38'35	1°17'22	opposition	3550 Jan 13 18:01	22°☾46'44	0°-59'-24
max. Earth dist.	3541 Jun 24 18:03	3°☾39'59	30.81807 AU	min. Earth dist.	3550 Jan 13 09:53	22°☾47'19	28.85855 AU
retrograde	3541 Oct 09 01:44	6°☾12'37		direct	3550 Apr 01 17:31	21°☾22'14	
opposition	3541 Dec 27 02:01	4°☾47'40	-1°-21'-34				
min. Earth dist.	3541 Dec 26 12:29	4°☾48'37	28.82171 AU	conjunction	3550 Jul 15 10:31	23°☾52'53	0°-54'-5
direct	3542 Mar 14 17:52	3°☾23'35		minimum elong	3550 Jul 15 10:31	23°☾52'53	0°54'05
				max. Earth dist.	3550 Jul 15 18:22	23°☾53'37	30.86210 AU
conjunction	3542 Jun 26 17:33	5°☾53'51	-1°-15'-11	retrograde	3550 Oct 29 16:38	26°☾25'42	
minimum elong	3542 Jun 26 17:33	5°☾53'51	1°15'12	opposition	3551 Jan 16 04:40	25°☾01'07	0°-56'-11
max. Earth dist.	3542 Jun 27 08:36	5°☾55'15	30.82387 AU	min. Earth dist.	3551 Jan 15 21:12	25°☾01'39	28.86669 AU
retrograde	3542 Oct 11 13:53	8°☾27'47		direct	3551 Apr 04 04:53	23°☾36'35	
opposition	3542 Dec 29 13:13	7°☾02'53	-1°-19'-10				
min. Earth dist.	3542 Dec 29 00:42	7°☾03'46	28.82707 AU	conjunction	3551 Jul 18 00:37	26°☾07'19	0°-51'-2
direct	3543 Mar 17 06:44	5°☾38'47		minimum elong	3551 Jul 18 00:37	26°☾07'19	0°51'03
				max. Earth dist.	3551 Jul 18 09:03	26°☾08'06	30.87099 AU
conjunction	3543 Jun 29 07:47	8°☾09'07	-1°-12'-54	retrograde	3551 Nov 01 04:13	28°☾40'00	
minimum elong	3543 Jun 29 07:47	8°☾09'07	1°12'54	opposition	3552 Jan 18 15:23	27°☾15'31	0°-52'-53
max. Earth dist.	3543 Jun 29 20:51	8°☾10'20	30.82892 AU	min. Earth dist.	3552 Jan 18 08:31	27°☾16'00	28.87616 AU
retrograde	3543 Oct 14 04:32	10°☾42'56		direct	3552 Apr 05 16:55	25°☾50'59	
opposition	3544 Jan 01 00:29	9°☾18'05	-1°-16'-40				
min. Earth dist.	3543 Dec 31 12:24	9°☾18'57	28.83167 AU	conjunction	3552 Jul 19 14:26	28°☾21'47	0°-47'-54
direct	3544 Mar 18 18:57	7°☾53'57		minimum elong	3552 Jul 19 14:26	28°☾21'47	0°47'56
				max. Earth dist.	3552 Jul 19 21:16	28°☾22'25	30.88120 AU
conjunction	3544 Jun 30 21:57	10°☾24'20	-1°-10'-30		3552 Sep 05 03:14	0°♂	
minimum elong	3544 Jun 30 21:57	10°☾24'20	1°10'31	retrograde	3552 Nov 02 18:43	0°♂54'21	
max. Earth dist.	3544 Jul 01 10:54	10°☾25'33	30.83308 AU		3553 Jan 02 00:11	30°♀☾	
retrograde	3544 Oct 15 16:43	12°☾58'02		opposition	3553 Jan 20 02:03	29°☾29'57	0°-49'-30
opposition	3545 Jan 02 11:45	11°☾33'13	-1°-14'-2	min. Earth dist.	3553 Jan 19 19:24	29°☾30'25	28.88681 AU
min. Earth dist.	3545 Jan 02 01:12	11°☾33'57	28.83545 AU	direct	3553 Apr 08 05:16	28°☾05'25	
direct	3545 Mar 21 07:13	10°☾09'01			3553 Jul 05 19:36	0°♂	
conjunction	3545 Jul 03 12:11	12°☾39'26	-1°-8'00	conjunction	3553 Jul 22 04:39	0°♂36'19	0°-44'-43
minimum elong	3545 Jul 03 12:11	12°☾39'26	1°08'01	minimum elong	3553 Jul 22 04:39	0°♂36'19	0°44'44
max. Earth dist.	3545 Jul 03 23:42	12°☾40'31	30.83678 AU	max. Earth dist.	3553 Jul 22 11:35	0°♂36'57	30.89207 AU
retrograde	3545 Oct 18 06:01	15°☾12'59		retrograde	3553 Nov 05 06:49	3°♂08'45	
opposition	3546 Jan 04 22:39	13°☾48'12	-1°-11'-19	opposition	3554 Jan 22 12:40	1°♂44'27	0°-46'-3
min. Earth dist.	3546 Jan 04 11:58	13°☾48'57	28.83896 AU	min. Earth dist.	3554 Jan 22 07:39	1°♂44'48	28.89774 AU
direct	3546 Mar 23 19:23	12°☾23'56		direct	3554 Apr 10 17:50	0°♂19'56	
conjunction	3546 Jul 06 02:24	14°☾54'24	-1°-5'-24	conjunction	3554 Jul 24 18:51	2°♂50'53	0°-41'-27
minimum elong	3546 Jul 06 02:25	14°☾54'24	1°05'25	minimum elong	3554 Jul 24 18:51	2°♂50'53	0°41'28
max. Earth dist.	3546 Jul 06 13:11	14°☾55'24	30.84024 AU	max. Earth dist.	3554 Jul 25 00:06	2°♂51'23	30.90301 AU
retrograde	3546 Oct 20 16:28	17°☾27'48		retrograde	3554 Nov 07 20:14	5°♂23'11	
opposition	3547 Jan 07 09:42	16°☾03'03	-1°-8'-29	opposition	3555 Jan 24 23:18	3°♂58'59	0°-42'-31
min. Earth dist.	3547 Jan 07 00:42	16°☾03'41	28.84254 AU	min. Earth dist.	3555 Jan 24 18:17	3°♂59'20	28.90839 AU
direct	3547 Mar 26 06:31	14°☾38'42		direct	3555 Apr 13 06:27	2°♂34'27	
conjunction	3547 Jul 08 16:29	17°☾09'13	-1°-2'-42	conjunction	3555 Jul 27 08:58	5°♂05'28	0°-38'-7
minimum elong	3547 Jul 08 16:29	17°☾09'13	1°02'43	minimum elong	3555 Jul 27 08:58	5°♂05'28	0°38'08
max. Earth dist.	3547 Jul 09 02:52	17°☾10'11	30.84414 AU	max. Earth dist.	3555 Jul 27 13:20	5°♂05'52	30.91320 AU
retrograde	3547 Oct 23 04:56	19°☾42'27		retrograde	3555 Nov 10 07:29	7°♂37'37	
opposition	3548 Jan 09 20:28	18°☾17'44	-1°-5'-33	opposition	3556 Jan 27 10:05	6°♂13'30	0°-38'-56
min. Earth dist.	3548 Jan 09 11:07	18°☾18'24	28.84670 AU	min. Earth dist.	3556 Jan 27 07:00	6°♂13'43	28.91819 AU
direct	3548 Mar 27 18:27	16°☾53'19		direct	3556 Apr 14 17:34	4°♂48'56	
conjunction	3548 Jul 10 06:28	19°☾23'53	0°-59'-55	conjunction	3556 Jul 28 23:10	7°♂19'59	0°-34'-44
minimum elong	3548 Jul 10 06:28	19°☾23'53	0°59'56	minimum elong	3556 Jul 28 23:10	7°♂19'59	0°34'45
max. Earth dist.	3548 Jul 10 15:41	19°☾24'44	30.84879 AU	max. Earth dist.	3556 Jul 29 02:29	7°♂20'18	30.92265 AU

retrograde	3556 Nov 11 20:29	9°♏51'57		conjunction	3564 Aug 16 13:48	25°♏09'51	0°-6'-26
opposition	3557 Jan 28 20:36	8°♏27'53	0°-35'-18	minimum elong	3564 Aug 16 13:48	25°♏09'51	0°06'27
min. Earth dist.	3557 Jan 28 17:36	8°♏28'06	28.92709 AU	behind sun begin	3564 Aug 16 07:36	25°♏09'18	
direct	3557 Apr 17 05:54	7°♏03'16		behind sun end	3564 Aug 16 20:00	25°♏10'24	
				max. Earth dist.	3564 Aug 16 10:38	25°♏09'36	30.99620 AU
conjunction	3557 Jul 31 13:17	9°♏34'21	0°-31'-18	retrograde	3564 Nov 29 15:21	27°♏40'26	
minimum elong	3557 Jul 31 13:17	9°♏34'21	0°31'20	opposition	3565 Feb 15 07:45	26°♏16'49	0°-4'-52
max. Earth dist.	3557 Jul 31 14:59	9°♏34'31	30.93114 AU	min. Earth dist.	3565 Feb 15 11:06	26°♏16'35	29.00268 AU
retrograde	3557 Nov 14 06:49	12°♏06'08		direct	3565 May 05 05:06	24°♏51'56	
opposition	3558 Jan 31 07:15	10°♏42'07	0°-31'-36				
min. Earth dist.	3558 Jan 31 06:02	10°♏42'12	28.93527 AU	conjunction	3565 Aug 19 03:27	27°♏23'15	0°-2'-48
direct	3558 Apr 19 16:15	9°♏17'26		minimum elong	3565 Aug 19 03:26	27°♏23'15	0°02'49
				behind sun begin	3565 Aug 18 20:51	27°♏22'40	
conjunction	3558 Aug 03 03:26	11°♏48'32	0°-27'-50	behind sun end	3565 Aug 19 10:01	27°♏23'50	
minimum elong	3558 Aug 03 03:26	11°♏48'32	0°27'51	max. Earth dist.	3565 Aug 18 23:30	27°♏22'55	31.00929 AU
max. Earth dist.	3558 Aug 03 04:54	11°♏48'40	30.93908 AU	retrograde	3565 Dec 02 04:25	29°♏53'42	
retrograde	3558 Nov 16 17:12	14°♏20'07		opposition	3566 Feb 17 17:58	28°♏30'12	0°00'-59
opposition	3559 Feb 02 17:38	12°♏56'08	0°-27'-52	min. Earth dist.	3566 Feb 17 21:13	28°♏29'59	29.01581 AU
min. Earth dist.	3559 Feb 02 16:46	12°♏56'12	28.94293 AU	direct	3566 May 07 17:17	27°♏05'21	
direct	3559 Apr 22 05:29	11°♏31'24		asc. node	3566 May 23 01:13	27°♏09'19	
conjunction	3559 Aug 05 17:19	14°♏02'30	0°-24'-20	conjunction	3566 Aug 21 17:01	29°♏36'44	0°00'56
minimum elong	3559 Aug 05 17:19	14°♏02'30	0°24'21	minimum elong	3566 Aug 21 17:02	29°♏36'44	0°00'57
max. Earth dist.	3559 Aug 05 16:49	14°♏02'27	30.94677 AU	behind sun begin	3566 Aug 21 10:26	29°♏36'09	
	3559 Sep 01 02:38	15°♏		behind sun end	3566 Aug 21 23:37	29°♏37'19	
retrograde	3559 Nov 19 04:56	16°♏33'53		max. Earth dist.	3566 Aug 21 11:49	29°♏36'17	31.02232 AU
opposition	3560 Feb 05 04:07	15°♏09'56	0°-24'-6		3566 Sep 01 04:42	0°♏	
min. Earth dist.	3560 Feb 05 04:08	15°♏09'56	28.95078 AU	retrograde	3566 Dec 04 14:33	2°♏07'04	
	3560 Feb 11 00:44	15°♏♏		opposition	3567 Feb 20 04:21	0°♏43'41	0°02'53
direct	3560 Apr 23 16:16	13°♏45'08		min. Earth dist.	3567 Feb 20 09:18	0°♏43'20	29.02874 AU
	3560 Jul 02 12:35	15°♏			3567 Mar 19 07:08	30°♏♏	
conjunction	3560 Aug 07 07:09	16°♏16'14	0°-20'-47	direct	3567 May 10 03:18	29°♏18'51	
minimum elong	3560 Aug 07 07:08	16°♏16'14	0°20'48		3567 Jun 29 22:51	0°♏	
max. Earth dist.	3560 Aug 07 07:00	16°♏16'13	30.95476 AU	conjunction	3567 Aug 24 06:43	1°♏50'17	0°04'36
retrograde	3560 Nov 20 15:25	18°♏47'27		minimum elong	3567 Aug 24 06:43	1°♏50'17	0°04'36
opposition	3561 Feb 06 14:31	17°♏23'32	0°-20'-18	behind sun begin	3567 Aug 24 00:16	1°♏49'42	
min. Earth dist.	3561 Feb 06 15:22	17°♏23'28	28.95897 AU	behind sun end	3567 Aug 24 13:10	1°♏50'51	
direct	3561 Apr 26 04:30	15°♏58'40		max. Earth dist.	3567 Aug 24 01:12	1°♏49'48	31.03489 AU
				retrograde	3567 Dec 07 00:51	4°♏20'28	
conjunction	3561 Aug 09 20:53	18°♏29'47	0°-17'-13	opposition	3568 Feb 22 14:43	2°♏57'12	0°06'46
minimum elong	3561 Aug 09 20:53	18°♏29'47	0°17'15	min. Earth dist.	3568 Feb 22 20:05	2°♏56'49	29.04080 AU
max. Earth dist.	3561 Aug 09 18:56	18°♏29'37	30.96342 AU	direct	3568 May 11 15:53	1°♏32'22	
retrograde	3561 Nov 23 04:22	21°♏00'49					
opposition	3562 Feb 09 00:44	19°♏36'57	0°-16'-28	conjunction	3568 Aug 25 20:09	4°♏03'50	0°08'13
min. Earth dist.	3562 Feb 09 01:45	19°♏36'53	28.96814 AU	minimum elong	3568 Aug 25 20:09	4°♏03'50	0°08'13
direct	3562 Apr 28 16:59	18°♏12'02		behind sun begin	3568 Aug 25 14:20	4°♏03'19	
				behind sun end	3568 Aug 26 01:58	4°♏04'21	
conjunction	3562 Aug 12 10:43	20°♏43'12	0°-13'-38	max. Earth dist.	3568 Aug 25 12:30	4°♏03'09	31.04639 AU
minimum elong	3562 Aug 12 10:43	20°♏43'12	0°13'39	retrograde	3568 Dec 08 12:19	6°♏33'53	
behind sun begin	3562 Aug 12 07:18	20°♏42'54		opposition	3569 Feb 24 01:07	5°♏10'41	0°10'39
behind sun end	3562 Aug 12 14:08	20°♏43'30		min. Earth dist.	3569 Feb 24 07:36	5°♏10'14	29.05178 AU
max. Earth dist.	3562 Aug 12 09:06	20°♏43'04	30.97306 AU	direct	3569 May 14 01:54	3°♏45'50	
retrograde	3562 Nov 25 15:16	23°♏14'04					
opposition	3563 Feb 11 11:10	21°♏50'15	0°-12'-37	conjunction	3569 Aug 28 09:52	6°♏17'19	0°11'49
min. Earth dist.	3563 Feb 11 13:26	21°♏50'06	28.97840 AU	minimum elong	3569 Aug 28 09:51	6°♏17'19	0°11'48
direct	3563 May 01 05:36	20°♏25'20		behind sun begin	3569 Aug 28 05:20	6°♏16'55	
				behind sun end	3569 Aug 28 14:23	6°♏17'43	
conjunction	3563 Aug 15 00:10	22°♏56'31	0°-10'-2	max. Earth dist.	3569 Aug 28 02:06	6°♏16'37	31.05670 AU
minimum elong	3563 Aug 15 00:10	22°♏56'31	0°10'04	retrograde	3569 Dec 10 22:05	8°♏47'12	
behind sun begin	3563 Aug 14 18:55	22°♏56'04		opposition	3570 Feb 26 11:26	7°♏24'04	0°14'29
behind sun end	3563 Aug 15 05:25	22°♏56'59		min. Earth dist.	3570 Feb 26 19:07	7°♏23'31	29.06144 AU
max. Earth dist.	3563 Aug 14 21:17	22°♏56'17	30.98405 AU	direct	3570 May 16 13:47	5°♏59'11	
retrograde	3563 Nov 28 04:05	25°♏27'15					
opposition	3564 Feb 13 21:26	24°♏03'31	0°-8'-45	conjunction	3570 Aug 30 23:16	8°♏30'39	0°15'24
min. Earth dist.	3564 Feb 13 23:12	24°♏03'24	28.99001 AU	minimum elong	3570 Aug 30 23:16	8°♏30'39	0°15'24
direct	3564 May 02 18:09	22°♏38'36		behind sun begin	3570 Aug 30 21:46	8°♏30'31	

behind sun end	3570 Aug 31 00:45	8° \mathring{M} 30'47		opposition	3579 Mar 18 07:20	27° \mathring{M} 15'50	0°47'17
max. Earth dist.	3570 Aug 30 13:20	8° \mathring{M} 29'45	31.06590 AU	min. Earth dist.	3579 Mar 18 20:15	27° \mathring{M} 14'56	29.15049 AU
retrograde	3570 Dec 13 10:00	11° \mathring{M} 00'22		direct	3579 Jun 06 02:07	25° \mathring{M} 50'47	
opposition	3571 Feb 28 21:44	9° \mathring{M} 37'16	0°18'18				
min. Earth dist.	3571 Mar 01 05:49	9° \mathring{M} 36'42	29.07026 AU	conjunction	3579 Sep 20 19:00	28° \mathring{M} 22'11	0°45'52
direct	3571 May 19 02:32	8° \mathring{M} 12'20		minimum elong	3579 Sep 20 19:00	28° \mathring{M} 22'11	0°45'51
				max. Earth dist.	3579 Sep 20 03:37	28° \mathring{M} 20'46	31.15630 AU
conjunction	3571 Sep 02 12:32	10° \mathring{M} 43'48	0°18'57		3579 Nov 07 13:59	0° \mathring{M}	
minimum elong	3571 Sep 02 12:32	10° \mathring{M} 43'48	0°18'56	retrograde	3580 Jan 02 09:29	0° \mathring{M} 50'33	
max. Earth dist.	3571 Sep 02 02:46	10° \mathring{M} 42'54	31.07428 AU		3580 Feb 29 02:02	30° \mathring{R} \mathring{M}	
retrograde	3571 Dec 15 19:47	13° \mathring{M} 13'20		opposition	3580 Mar 19 17:36	29° \mathring{M} 27'54	0°50'38
opposition	3572 Mar 02 08:06	11° \mathring{M} 50'14	0°22'06	min. Earth dist.	3580 Mar 20 06:39	29° \mathring{M} 26'59	29.16245 AU
min. Earth dist.	3572 Mar 02 17:44	11° \mathring{M} 49'34	29.07840 AU	direct	3580 Jun 07 13:30	28° \mathring{M} 02'52	
direct	3572 May 20 15:14	10° \mathring{M} 25'16			3580 Sep 06 18:28	0° \mathring{M}	
conjunction	3572 Sep 04 01:39	12° \mathring{M} 56'42	0°22'28	conjunction	3580 Sep 22 07:41	0° \mathring{M} 34'18	0°48'58
minimum elong	3572 Sep 04 01:39	12° \mathring{M} 56'42	0°22'29	minimum elong	3580 Sep 22 07:40	0° \mathring{M} 34'18	0°48'58
max. Earth dist.	3572 Sep 03 14:20	12° \mathring{M} 55'40	31.08236 AU	max. Earth dist.	3580 Sep 21 16:31	0° \mathring{M} 32'53	31.16767 AU
retrograde	3572 Dec 17 07:52	15° \mathring{M} 26'03		retrograde	3581 Jan 03 19:00	3° \mathring{M} 02'32	
opposition	3573 Mar 04 18:07	14° \mathring{M} 02'59	0°25'51	opposition	3581 Mar 22 03:54	1° \mathring{M} 39'57	0°53'55
min. Earth dist.	3573 Mar 05 03:30	14° \mathring{M} 02'19	29.08646 AU	min. Earth dist.	3581 Mar 22 18:38	1° \mathring{M} 38'56	29.17332 AU
direct	3573 May 23 04:02	12° \mathring{M} 37'56		direct	3581 Jun 10 01:04	0° \mathring{M} 14'56	
conjunction	3573 Sep 06 14:48	15° \mathring{M} 09'21	0°25'57	conjunction	3581 Sep 24 20:11	2° \mathring{M} 46'22	0°52'00
minimum elong	3573 Sep 06 14:48	15° \mathring{M} 09'21	0°25'57	minimum elong	3581 Sep 24 20:11	2° \mathring{M} 46'22	0°51'59
max. Earth dist.	3573 Sep 06 03:11	15° \mathring{M} 08'17	31.09042 AU	max. Earth dist.	3581 Sep 24 03:22	2° \mathring{M} 44'49	31.17798 AU
retrograde	3573 Dec 19 18:41	17° \mathring{M} 38'31		retrograde	3582 Jan 06 06:58	5° \mathring{M} 14'30	
opposition	3574 Mar 07 04:24	16° \mathring{M} 15'27	0°29'33	opposition	3582 Mar 24 14:14	3° \mathring{M} 51'59	0°57'07
min. Earth dist.	3574 Mar 07 15:19	16° \mathring{M} 14'41	29.09483 AU	min. Earth dist.	3582 Mar 25 04:42	3° \mathring{M} 50'58	29.18303 AU
direct	3574 May 25 16:20	14° \mathring{M} 50'22		direct	3582 Jun 12 13:35	2° \mathring{M} 26'57	
conjunction	3574 Sep 09 03:40	17° \mathring{M} 21'46	0°29'24	conjunction	3582 Sep 27 08:35	4° \mathring{M} 58'22	0°54'57
minimum elong	3574 Sep 09 03:39	17° \mathring{M} 21'46	0°29'25	minimum elong	3582 Sep 27 08:35	4° \mathring{M} 58'22	0°54'57
max. Earth dist.	3574 Sep 08 15:28	17° \mathring{M} 20'38	31.09914 AU	max. Earth dist.	3582 Sep 26 15:24	4° \mathring{M} 56'47	31.18696 AU
retrograde	3574 Dec 22 06:29	19° \mathring{M} 50'44		retrograde	3583 Jan 08 17:37	7° \mathring{M} 26'23	
opposition	3575 Mar 09 14:31	18° \mathring{M} 27'43	0°33'12	opposition	3583 Mar 27 00:42	6° \mathring{M} 03'54	1°00'13
min. Earth dist.	3575 Mar 10 00:56	18° \mathring{M} 26'59	29.10397 AU	min. Earth dist.	3583 Mar 27 16:48	6° \mathring{M} 02'47	29.19155 AU
direct	3575 May 28 05:55	17° \mathring{M} 02'35		direct	3583 Jun 15 01:55	4° \mathring{M} 38'53	
conjunction	3575 Sep 11 16:27	19° \mathring{M} 33'58	0°32'48	conjunction	3583 Sep 29 20:51	7° \mathring{M} 10'16	0°57'49
minimum elong	3575 Sep 11 16:27	19° \mathring{M} 33'58	0°32'48	minimum elong	3583 Sep 29 20:51	7° \mathring{M} 10'16	0°57'49
max. Earth dist.	3575 Sep 11 03:31	19° \mathring{M} 32'46	31.10879 AU	max. Earth dist.	3583 Sep 29 02:52	7° \mathring{M} 08'36	31.19502 AU
retrograde	3575 Dec 24 16:06	22° \mathring{M} 02'47		retrograde	3584 Jan 11 05:10	9° \mathring{M} 38'08	
opposition	3576 Mar 11 00:44	20° \mathring{M} 39'48	0°36'49	opposition	3584 Mar 28 10:55	8° \mathring{M} 15'41	1°03'15
min. Earth dist.	3576 Mar 11 12:13	20° \mathring{M} 39'00	29.11437 AU	min. Earth dist.	3584 Mar 29 02:48	8° \mathring{M} 14'35	29.19915 AU
direct	3576 May 29 16:24	19° \mathring{M} 14'40		direct	3584 Jun 16 15:47	6° \mathring{M} 50'39	
conjunction	3576 Sep 13 05:11	21° \mathring{M} 46'02	0°36'09	conjunction	3584 Oct 01 09:00	9° \mathring{M} 22'01	1°00'36
minimum elong	3576 Sep 13 05:11	21° \mathring{M} 46'02	0°36'10	minimum elong	3584 Oct 01 09:00	9° \mathring{M} 22'01	1°00'37
max. Earth dist.	3576 Sep 12 16:33	21° \mathring{M} 44'52	31.11979 AU	max. Earth dist.	3584 Sep 30 14:06	9° \mathring{M} 20'16	31.20222 AU
retrograde	3576 Dec 26 02:02	24° \mathring{M} 14'43		retrograde	3585 Jan 12 14:42	11° \mathring{M} 49'45	
opposition	3577 Mar 13 10:54	22° \mathring{M} 51'49	0°40'22	opposition	3585 Mar 30 21:17	10° \mathring{M} 27'19	1°06'10
min. Earth dist.	3577 Mar 13 22:20	22° \mathring{M} 51'01	29.12581 AU	min. Earth dist.	3585 Mar 31 14:25	10° \mathring{M} 26'07	29.20621 AU
direct	3577 Jun 01 04:54	21° \mathring{M} 26'42		direct	3585 Jun 19 02:46	9° \mathring{M} 02'15	
conjunction	3577 Sep 15 17:51	23° \mathring{M} 58'04	0°39'27	conjunction	3585 Oct 03 21:05	11° \mathring{M} 33'34	1°03'18
minimum elong	3577 Sep 15 17:51	23° \mathring{M} 58'04	0°39'26	minimum elong	3585 Oct 03 21:05	11° \mathring{M} 33'34	1°03'17
max. Earth dist.	3577 Sep 15 03:46	23° \mathring{M} 56'46	31.13169 AU	max. Earth dist.	3585 Oct 03 02:26	11° \mathring{M} 31'51	31.20910 AU
retrograde	3577 Dec 28 13:02	26° \mathring{M} 26'37		retrograde	3586 Jan 15 00:06	14° \mathring{M} 01'10	
opposition	3578 Mar 15 21:01	25° \mathring{M} 03'48	0°43'51	opposition	3586 Apr 02 07:32	12° \mathring{M} 38'46	1°09'00
min. Earth dist.	3578 Mar 16 09:02	25° \mathring{M} 02'58	29.13812 AU	min. Earth dist.	3586 Apr 03 00:42	12° \mathring{M} 37'34	29.21304 AU
direct	3578 Jun 03 14:30	23° \mathring{M} 38'43		direct	3586 Jun 21 15:56	11° \mathring{M} 13'40	
conjunction	3578 Sep 18 06:37	26° \mathring{M} 10'07	0°42'41	conjunction	3586 Oct 06 08:55	13° \mathring{M} 44'57	1°05'53
minimum elong	3578 Sep 18 06:36	26° \mathring{M} 10'07	0°42'42	minimum elong	3586 Oct 06 08:54	13° \mathring{M} 44'57	1°05'54
max. Earth dist.	3578 Sep 17 17:00	26° \mathring{M} 08'51	31.14410 AU	max. Earth dist.	3586 Oct 05 13:03	13° \mathring{M} 43'06	31.21608 AU
retrograde	3578 Dec 30 22:10	28° \mathring{M} 38'34		retrograde	3587 Jan 17 10:40	16° \mathring{M} 12'25	

opposition	3587 Apr 04 17:53	14° $\underline{\text{A}}$ 50'02	1°11'43	opposition	3595 Apr 22 05:57	2° M 18'59	1°29'27
min. Earth dist.	3587 Apr 05 11:12	14° $\underline{\text{A}}$ 48'49	29.22046 AU	min. Earth dist.	3595 Apr 23 01:37	2° M 17'37	29.29508 AU
direct	3587 Jun 24 01:57	13° $\underline{\text{A}}$ 24'55		direct	3595 Jul 12 00:33	0° M 54'07	
conjunction	3587 Oct 08 20:35	15° $\underline{\text{A}}$ 56'09	1°08'24	conjunction	3595 Oct 26 16:09	3° M 25'09	1°24'34
minimum elong	3587 Oct 08 20:34	15° $\underline{\text{A}}$ 56'09	1°08'23	minimum elong	3595 Oct 26 16:09	3° M 25'09	1°24'33
max. Earth dist.	3587 Oct 08 01:41	15° $\underline{\text{A}}$ 54'24	31.22382 AU	max. Earth dist.	3595 Oct 25 17:51	3° M 23'04	31.29727 AU
retrograde	3588 Jan 19 18:32	18° $\underline{\text{A}}$ 23'31		retrograde	3596 Feb 06 06:01	5° M 51'56	
opposition	3588 Apr 06 04:17	17° $\underline{\text{A}}$ 01'09	1°14'20	opposition	3596 Apr 23 16:40	4° M 29'58	1°31'07
min. Earth dist.	3588 Apr 06 22:02	16° $\underline{\text{A}}$ 59'55	29.22869 AU	min. Earth dist.	3596 Apr 24 12:38	4° M 28'35	29.30092 AU
direct	3588 Jun 25 14:00	15° $\underline{\text{A}}$ 36'03		direct	3596 Jul 13 11:39	3° M 05'06	
				max. Earth dist.	3596 Oct 27 05:47	5° M 34'03	31.30242 AU
conjunction	3588 Oct 10 08:10	18° $\underline{\text{A}}$ 07'15	1°10'48	conjunction	3596 Oct 28 03:25	5° M 36'04	1°26'03
minimum elong	3588 Oct 10 08:10	18° $\underline{\text{A}}$ 07'15	1°10'48	minimum elong	3596 Oct 28 03:25	5° M 36'04	1°26'04
max. Earth dist.	3588 Oct 09 12:03	18° $\underline{\text{A}}$ 05'23	31.23264 AU	retrograde	3597 Feb 07 13:47	8° M 02'46	
retrograde	3589 Jan 21 04:38	20° $\underline{\text{A}}$ 34'31		opposition	3597 Apr 26 03:22	6° M 40'48	1°32'39
opposition	3589 Apr 08 14:28	19° $\underline{\text{A}}$ 12'13	1°16'51	min. Earth dist.	3597 Apr 27 00:08	6° M 39'22	29.30548 AU
min. Earth dist.	3589 Apr 09 07:41	19° $\underline{\text{A}}$ 11'01	29.23813 AU	direct	3597 Jul 16 00:13	5° M 15'56	
direct	3589 Jun 28 00:32	17° $\underline{\text{A}}$ 47'07					
conjunction	3589 Oct 12 19:53	20° $\underline{\text{A}}$ 18'19	1°13'06	conjunction	3597 Oct 30 14:23	7° M 46'49	1°27'26
minimum elong	3589 Oct 12 19:53	20° $\underline{\text{A}}$ 18'19	1°13'05	minimum elong	3597 Oct 30 14:23	7° M 46'49	1°27'25
max. Earth dist.	3589 Oct 12 00:41	20° $\underline{\text{A}}$ 16'32	31.24252 AU	max. Earth dist.	3597 Oct 29 15:26	7° M 44'41	31.30660 AU
retrograde	3590 Jan 23 13:37	22° $\underline{\text{A}}$ 45'31		retrograde	3598 Feb 09 23:42	10° M 13'26	
opposition	3590 Apr 11 00:59	21° $\underline{\text{A}}$ 23'16	1°19'15	opposition	3598 Apr 28 14:05	8° M 51'28	1°34'03
min. Earth dist.	3590 Apr 11 19:15	21° $\underline{\text{A}}$ 22'00	29.24845 AU	min. Earth dist.	3598 Apr 29 10:21	8° M 50'04	29.30939 AU
direct	3590 Jun 30 10:46	19° $\underline{\text{A}}$ 58'14		direct	3598 Jul 18 11:06	7° M 26'34	
max. Earth dist.	3590 Oct 14 11:12	22° $\underline{\text{A}}$ 27'32	31.25318 AU	max. Earth dist.	3598 Nov 01 03:16	9° M 55'21	31.31024 AU
conjunction	3590 Oct 15 07:14	22° $\underline{\text{A}}$ 29'24	1°15'17	conjunction	3598 Nov 02 01:11	9° M 57'23	1°28'41
minimum elong	3590 Oct 15 07:14	22° $\underline{\text{A}}$ 29'24	1°15'18	minimum elong	3598 Nov 02 01:11	9° M 57'23	1°28'41
retrograde	3591 Jan 26 00:57	24° $\underline{\text{A}}$ 56'32		retrograde	3599 Feb 12 08:08	12° M 23'56	
opposition	3591 Apr 13 11:22	23° $\underline{\text{A}}$ 34'22	1°21'32	opposition	3599 May 01 01:01	11° M 01'57	1°35'19
min. Earth dist.	3591 Apr 14 04:50	23° $\underline{\text{A}}$ 33'10	29.25923 AU	min. Earth dist.	3599 May 01 22:12	11° M 00'29	29.31304 AU
direct	3591 Jul 02 22:32	22° $\underline{\text{A}}$ 09'23		direct	3599 Jul 20 21:42	9° M 37'03	
conjunction	3591 Oct 17 18:45	24° $\underline{\text{A}}$ 40'33	1°17'22	conjunction	3599 Nov 04 11:50	12° M 07'47	1°29'48
minimum elong	3591 Oct 17 18:45	24° $\underline{\text{A}}$ 40'33	1°17'22	minimum elong	3599 Nov 04 11:50	12° M 07'47	1°29'47
max. Earth dist.	3591 Oct 16 22:52	24° $\underline{\text{A}}$ 38'42	31.26383 AU	max. Earth dist.	3599 Nov 03 13:24	12° M 05'42	31.31406 AU
retrograde	3592 Jan 28 11:34	27° $\underline{\text{A}}$ 07'38		retrograde	3600 Feb 14 18:36	14° M 34'17	
opposition	3592 Apr 14 21:53	25° $\underline{\text{A}}$ 45'31	1°23'42	opposition	3600 May 02 11:37	13° M 12'17	1°36'27
min. Earth dist.	3592 Apr 15 16:44	25° $\underline{\text{A}}$ 44'13	29.26981 AU	min. Earth dist.	3600 May 03 07:38	13° M 10'55	29.31712 AU
direct	3592 Jul 04 10:23	24° $\underline{\text{A}}$ 20'35		direct	3600 Jul 22 09:31	11° M 47'23	
max. Earth dist.	3592 Oct 18 09:49	26° $\underline{\text{A}}$ 49'51	31.27405 AU				
conjunction	3592 Oct 19 06:13	26° $\underline{\text{A}}$ 51'44	1°19'21	conjunction	3600 Nov 05 22:32	14° M 18'05	1°30'47
minimum elong	3592 Oct 19 06:13	26° $\underline{\text{A}}$ 51'44	1°19'22	minimum elong	3600 Nov 05 22:32	14° M 18'05	1°30'48
retrograde	3593 Jan 29 22:54	29° $\underline{\text{A}}$ 18'46		max. Earth dist.	3600 Nov 05 00:37	14° M 16'02	31.31840 AU
opposition	3593 Apr 17 08:28	27° $\underline{\text{A}}$ 56'42	1°25'45		3600 Nov 24 22:37	15° M	
min. Earth dist.	3593 Apr 18 02:56	27° $\underline{\text{A}}$ 55'26	29.27947 AU				
direct	3593 Jul 06 23:55	26° $\underline{\text{A}}$ 31'48					
conjunction	3593 Oct 21 17:38	29° $\underline{\text{A}}$ 02'56	1°21'12				
minimum elong	3593 Oct 21 17:38	29° $\underline{\text{A}}$ 02'56	1°21'12				
max. Earth dist.	3593 Oct 20 20:26	29° $\underline{\text{A}}$ 00'58	31.28305 AU				
	3593 Nov 16 23:04	0° M					
retrograde	3594 Feb 01 09:09	1° M 29'53					
opposition	3594 Apr 19 19:11	0° M 07'53	1°27'40				
min. Earth dist.	3594 Apr 20 14:45	0° M 06'32	29.28799 AU				
	3594 Apr 24 13:34	30° R $\underline{\text{A}}$					
direct	3594 Jul 09 10:47	28° $\underline{\text{A}}$ 43'00					
	3594 Sep 19 10:59	0° M					
max. Earth dist.	3594 Oct 23 08:07	1° M 12'09	31.29087 AU				
conjunction	3594 Oct 24 05:03	1° M 14'05	1°22'56				
minimum elong	3594 Oct 24 05:03	1° M 14'05	1°22'57				
retrograde	3595 Feb 03 19:13	3° M 40'57					

retrograde	3600 Feb 14 18:36	14°M34'17		minimum elong	3607 Nov 21 23:28	29°M31'52	1°34'01
opposition	3600 May 02 11:37	13°M12'17	1°36'27	max. Earth dist.	3607 Nov 21 02:25	29°M29'54	31.35190 AU
min. Earth dist.	3600 May 03 07:38	13°M10'55	29.31712 AU		3607 Dec 04 14:22	0°J	
direct	3600 Jul 22 09:31	11°M47'23		retrograde	3608 Mar 03 03:12	1°J58'22	
				opposition	3608 May 20 04:21	0°J36'38	1°40'24
conjunction	3600 Nov 05 22:32	14°M18'05	1°30'47	min. Earth dist.	3608 May 21 01:10	0°J35'13	29.35340 AU
minimum elong	3600 Nov 05 22:32	14°M18'05	1°30'48		3608 Jun 12 07:53	30°RM	
max. Earth dist.	3600 Nov 05 00:37	14°M16'02	31.31840 AU	direct	3608 Aug 09 06:26	29°M12'08	
	3600 Nov 24 22:37	15°M			3608 Oct 03 22:57	0°J	
retrograde	3601 Feb 16 04:47	16°M44'33					
opposition	3601 May 04 22:35	15°M22'34	1°37'27	conjunction	3608 Nov 23 09:43	1°J42'32	1°33'57
min. Earth dist.	3601 May 05 19:19	15°M21'08	29.32196 AU	minimum elong	3608 Nov 23 09:43	1°J42'32	1°33'58
	3601 May 18 18:59	15°RM		max. Earth dist.	3608 Nov 22 12:01	1°J40'30	31.35247 AU
direct	3601 Jul 24 20:53	13°M57'42		retrograde	3609 Mar 05 13:18	4°J09'02	
	3601 Sep 27 01:24	15°M		opposition	3609 May 22 15:39	2°J47'17	1°40'15
max. Earth dist.	3601 Nov 07 11:26	16°M26'20	31.32369 AU	min. Earth dist.	3609 May 23 11:27	2°J45'56	29.35318 AU
				direct	3609 Aug 11 18:35	1°J22'46	
conjunction	3601 Nov 08 09:03	16°M28'21	1°31'39				
minimum elong	3601 Nov 08 09:03	16°M28'21	1°31'39	conjunction	3609 Nov 25 19:52	3°J53'05	1°33'45
retrograde	3602 Feb 18 15:37	18°M54'48		minimum elong	3609 Nov 25 19:52	3°J53'05	1°33'45
opposition	3602 May 07 09:27	17°M32'52	1°38'18	max. Earth dist.	3609 Nov 24 22:27	3°J51'05	31.35156 AU
min. Earth dist.	3602 May 08 05:07	17°M31'31	29.32755 AU	retrograde	3610 Mar 07 23:06	6°J19'35	
direct	3602 Jul 27 09:41	16°M08'03		opposition	3610 May 25 03:08	4°J57'46	1°39'58
				min. Earth dist.	3610 May 25 23:46	4°J56'22	29.35180 AU
conjunction	3602 Nov 10 19:32	18°M38'41	1°32'23	direct	3610 Aug 14 05:29	3°J33'15	
minimum elong	3602 Nov 10 19:32	18°M38'41	1°32'24	max. Earth dist.	3610 Nov 27 08:51	6°J01'30	31.34987 AU
max. Earth dist.	3602 Nov 09 21:46	18°M36'39	31.32960 AU				
retrograde	3603 Feb 21 02:12	21°M05'09		conjunction	3610 Nov 28 05:52	6°J03'28	1°33'24
opposition	3603 May 09 20:26	19°M43'15	1°39'00	minimum elong	3610 Nov 28 05:52	6°J03'28	1°33'25
min. Earth dist.	3603 May 10 16:32	19°M41'53	29.33376 AU	retrograde	3611 Mar 10 09:16	8°J29'56	
direct	3603 Jul 29 19:57	18°M18'31		opposition	3611 May 27 14:26	7°J08'04	1°39'32
max. Earth dist.	3603 Nov 12 09:09	20°M47'12	31.33584 AU	min. Earth dist.	3611 May 28 10:02	7°J06'44	29.34979 AU
				direct	3611 Aug 16 17:43	5°J43'32	
conjunction	3603 Nov 13 05:56	20°M49'08	1°32'59				
minimum elong	3603 Nov 13 05:56	20°M49'08	1°32'58	conjunction	3611 Nov 30 15:39	8°J13'39	1°32'56
retrograde	3604 Feb 23 12:32	23°M15'36		minimum elong	3611 Nov 30 15:39	8°J13'39	1°32'56
opposition	3604 May 11 07:28	21°M53'46	1°39'34	max. Earth dist.	3611 Nov 29 18:33	8°J11'41	31.34777 AU
min. Earth dist.	3604 May 12 03:20	21°M52'25	29.33974 AU	retrograde	3612 Mar 11 19:52	10°J40'07	
direct	3604 Jul 31 09:38	20°M29'07		opposition	3612 May 29 01:51	9°J18'11	1°38'58
				min. Earth dist.	3612 May 29 21:35	9°J16'51	29.34786 AU
conjunction	3604 Nov 14 16:20	22°M59'43	1°33'26	direct	3612 Aug 18 04:42	7°J53'38	
minimum elong	3604 Nov 14 16:20	22°M59'43	1°33'27	max. Earth dist.	3612 Dec 01 05:48	10°J21'49	31.34604 AU
max. Earth dist.	3604 Nov 13 18:33	22°M57'41	31.34155 AU				
retrograde	3605 Feb 25 00:01	25°M26'12		conjunction	3612 Dec 02 01:28	10°J23'40	1°32'21
opposition	3605 May 13 18:28	24°M04'25	1°39'59	minimum elong	3612 Dec 02 01:28	10°J23'40	1°32'21
min. Earth dist.	3605 May 14 14:15	24°M03'03	29.34514 AU	retrograde	3613 Mar 14 05:57	12°J50'07	
direct	3605 Aug 02 20:42	22°M39'49		opposition	3613 May 31 13:14	11°J28'09	1°38'16
max. Earth dist.	3605 Nov 16 06:05	25°M08'27	31.34636 AU	min. Earth dist.	3613 Jun 01 08:12	11°J26'52	29.34638 AU
				direct	3613 Aug 20 18:35	10°J03'36	
conjunction	3605 Nov 17 02:51	25°M10'23	1°33'46				
minimum elong	3605 Nov 17 02:51	25°M10'23	1°33'45	conjunction	3613 Dec 04 11:06	12°J33'34	1°31'37
retrograde	3606 Feb 27 08:11	27°M36'53		minimum elong	3613 Dec 04 11:06	12°J33'34	1°31'36
opposition	3606 May 16 05:49	26°M15'08	1°40'16	max. Earth dist.	3613 Dec 03 15:04	12°J31'42	31.34508 AU
min. Earth dist.	3606 May 17 02:10	26°M13'45	29.34930 AU	retrograde	3614 Mar 16 17:20	15°J00'03	
direct	3606 Aug 05 09:07	24°M50'36		opposition	3614 Jun 03 00:45	13°J38'04	1°37'25
				min. Earth dist.	3614 Jun 03 18:47	13°J36'50	29.34596 AU
conjunction	3606 Nov 19 13:02	27°M21'07	1°33'58	direct	3614 Aug 23 05:42	12°J13'33	
minimum elong	3606 Nov 19 13:02	27°M21'07	1°33'58				
max. Earth dist.	3606 Nov 18 15:11	27°M19'05	31.34990 AU	conjunction	3614 Dec 06 20:43	14°J43'27	1°30'45
retrograde	3607 Mar 01 18:18	29°M47'38		minimum elong	3614 Dec 06 20:43	14°J43'27	1°30'46
opposition	3607 May 18 17:04	28°M25'54	1°40'24	max. Earth dist.	3614 Dec 06 02:24	14°J41'44	31.34506 AU
min. Earth dist.	3607 May 19 12:46	28°M24'33	29.35215 AU	retrograde	3615 Mar 19 01:48	17°J09'58	
direct	3607 Aug 07 20:01	27°M01'23		opposition	3615 Jun 05 12:20	15°J48'00	1°36'26
				min. Earth dist.	3615 Jun 06 06:20	15°J46'46	29.34619 AU
conjunction	3607 Nov 21 23:28	29°M31'52	1°34'01	direct	3615 Aug 25 17:59	14°J23'33	

max. Earth dist.	3615 Dec 08 11:31	16°♂51'39	31.34565 AU	min. Earth dist.	3623 Jun 24 01:45	3°♂09'47	29.32762 AU
				direct	3623 Sep 12 12:15	1°♂46'39	
conjunction	3615 Dec 09 06:15	16°♂53'24	1°29'46				
minimum elong	3615 Dec 09 06:15	16°♂53'24	1°29'46	conjunction	3623 Dec 26 10:41	4°♂16'05	1°17'24
retrograde	3616 Mar 20 12:25	19°♂19'58		minimum elong	3623 Dec 26 10:41	4°♂16'05	1°17'23
opposition	3616 Jun 06 23:43	17°♂58'01	1°35'18	max. Earth dist.	3623 Dec 25 20:10	4°♂14'43	31.32368 AU
min. Earth dist.	3616 Jun 07 16:30	17°♂56'53	29.34685 AU	retrograde	3624 Apr 07 00:21	6°♂43'16	
direct	3616 Aug 27 05:06	16°♂33'37		opposition	3624 Jun 24 23:08	5°♂21'07	1°21'36
				min. Earth dist.	3624 Jun 25 13:40	5°♂20'08	29.32107 AU
conjunction	3616 Dec 10 15:58	19°♂03'27	1°28'39	direct	3624 Sep 14 01:00	3°♂56'59	
minimum elong	3616 Dec 10 15:59	19°♂03'27	1°28'39				
max. Earth dist.	3616 Dec 09 22:33	19°♂01'49	31.34624 AU	conjunction	3624 Dec 27 19:55	6°♂26'21	1°15'20
retrograde	3617 Mar 22 21:52	21°♂30'07		minimum elong	3624 Dec 27 19:55	6°♂26'21	1°15'21
opposition	3617 Jun 09 11:33	20°♂08'10	1°34'02	max. Earth dist.	3624 Dec 27 05:18	6°♂24'59	31.31737 AU
min. Earth dist.	3617 Jun 10 04:57	20°♂06'59	29.34728 AU	retrograde	3625 Apr 09 11:17	8°♂53'36	
direct	3617 Aug 29 15:46	18°♂43'51		opposition	3625 Jun 27 11:11	7°♂31'23	1°19'20
max. Earth dist.	3617 Dec 12 08:02	21°♂12'00	31.34647 AU	min. Earth dist.	3625 Jun 28 00:02	7°♂30'31	29.31502 AU
				direct	3625 Sep 16 13:14	6°♂07'16	
conjunction	3617 Dec 13 01:27	21°♂13'38	1°27'24				
minimum elong	3617 Dec 13 01:27	21°♂13'38	1°27'24	conjunction	3625 Dec 30 05:08	8°♂36'33	1°13'10
retrograde	3618 Mar 25 08:16	23°♂40'22		minimum elong	3625 Dec 30 05:08	8°♂36'33	1°13'10
opposition	3618 Jun 11 23:19	22°♂18'27	1°32'39	max. Earth dist.	3625 Dec 29 16:10	8°♂35'20	31.31167 AU
min. Earth dist.	3618 Jun 12 15:18	22°♂17'22	29.34705 AU	retrograde	3626 Apr 11 21:01	11°♂03'54	
direct	3618 Sep 01 03:20	20°♂54'11		opposition	3626 Jun 29 23:27	9°♂41'38	1°16'58
				min. Earth dist.	3626 Jun 30 12:21	9°♂40'46	29.30981 AU
conjunction	3618 Dec 15 11:06	23°♂23'56	1°26'02	direct	3626 Sep 19 00:37	8°♂17'33	
minimum elong	3618 Dec 15 11:06	23°♂23'56	1°26'02				
max. Earth dist.	3618 Dec 14 18:06	23°♂22'20	31.34573 AU	conjunction	3627 Jan 01 14:20	10°♂46'46	1°10'54
retrograde	3619 Mar 27 18:44	25°♂50'47		minimum elong	3627 Jan 01 14:20	10°♂46'46	1°10'55
opposition	3619 Jun 14 11:13	24°♂28'51	1°31'07	max. Earth dist.	3627 Jan 01 02:00	10°♂45'37	31.30707 AU
min. Earth dist.	3619 Jun 15 03:51	24°♂27'43	29.34584 AU	retrograde	3627 Apr 14 06:45	13°♂14'13	
direct	3619 Sep 03 13:10	23°♂04'38		opposition	3627 Jul 02 11:23	11°♂51'56	1°14'29
				min. Earth dist.	3627 Jul 02 22:19	11°♂51'11	29.30558 AU
conjunction	3619 Dec 17 20:43	25°♂34'21	1°24'32	direct	3627 Sep 21 12:00	10°♂27'54	
minimum elong	3619 Dec 17 20:43	25°♂34'21	1°24'32				
max. Earth dist.	3619 Dec 17 04:15	25°♂32'48	31.34392 AU	conjunction	3628 Jan 03 23:33	12°♂57'04	1°08'31
retrograde	3620 Mar 29 05:22	28°♂01'16		minimum elong	3628 Jan 03 23:33	12°♂57'04	1°08'31
opposition	3620 Jun 15 23:06	26°♂39'19	1°29'27	max. Earth dist.	3628 Jan 03 11:58	12°♂55'59	31.30322 AU
min. Earth dist.	3620 Jun 16 14:43	26°♂38'16	29.34318 AU	retrograde	3628 Apr 15 16:58	15°♂24'39	
direct	3620 Sep 05 00:44	25°♂15'09		opposition	3628 Jul 03 23:39	14°♂02'20	1°11'53
				min. Earth dist.	3628 Jul 04 10:41	14°♂01'36	29.30203 AU
conjunction	3620 Dec 19 06:16	27°♂44'49	1°22'55	direct	3628 Sep 22 21:26	12°♂38'22	
minimum elong	3620 Dec 19 06:16	27°♂44'49	1°22'55				
max. Earth dist.	3620 Dec 18 13:25	27°♂43'14	31.34055 AU	conjunction	3629 Jan 05 08:45	15°♂07'30	1°06'02
	3621 Mar 05 05:15	0°♂		minimum elong	3629 Jan 05 08:45	15°♂07'30	1°06'03
retrograde	3621 Mar 31 16:50	0°♂11'49		max. Earth dist.	3629 Jan 04 22:26	15°♂06'32	31.29990 AU
	3621 Apr 27 17:54	30°♂		retrograde	3629 Apr 18 03:33	17°♂35'12	
opposition	3621 Jun 18 11:06	28°♂49'50	1°27'40	opposition	3629 Jul 06 11:53	16°♂12'54	1°09'11
min. Earth dist.	3621 Jun 19 02:58	28°♂48'46	29.33916 AU	min. Earth dist.	3629 Jul 06 21:25	16°♂12'15	29.29861 AU
direct	3621 Sep 07 11:26	27°♂25'42		direct	3629 Sep 25 08:22	14°♂48'59	
conjunction	3621 Dec 21 15:55	29°♂55'18	1°21'11	conjunction	3630 Jan 07 17:57	17°♂18'05	1°03'28
minimum elong	3621 Dec 21 15:55	29°♂55'18	1°21'11	minimum elong	3630 Jan 07 17:57	17°♂18'05	1°03'27
max. Earth dist.	3621 Dec 21 00:22	29°♂53'50	31.33589 AU	max. Earth dist.	3630 Jan 07 07:38	17°♂17'07	31.29648 AU
	3621 Dec 23 18:00	0°♂		retrograde	3630 Apr 20 15:45	19°♂45'56	
retrograde	3622 Apr 03 03:45	2°♂22'22		opposition	3630 Jul 09 00:20	18°♂23'36	1°06'23
opposition	3622 Jun 20 23:11	1°♂00'20	1°25'46	min. Earth dist.	3630 Jul 09 09:41	18°♂22'58	29.29508 AU
min. Earth dist.	3622 Jun 21 14:30	0°♂59'18	29.33378 AU	direct	3630 Sep 27 18:30	16°♂59'46	
	3622 Aug 01 08:47	30°♂					
direct	3622 Sep 10 01:05	29°♂36'13		conjunction	3631 Jan 10 03:15	19°♂28'49	1°00'47
	3622 Oct 18 14:06	0°♂		minimum elong	3631 Jan 10 03:16	19°♂28'49	1°00'47
max. Earth dist.	3622 Dec 23 09:05	2°♂04'13	31.33010 AU	max. Earth dist.	3631 Jan 09 18:37	19°♂28'00	31.29263 AU
				retrograde	3631 Apr 23 03:09	21°♂56'47	
conjunction	3622 Dec 24 01:12	2°♂05'44	1°19'21	opposition	3631 Jul 11 12:49	20°♂34'26	1°03'29
minimum elong	3622 Dec 24 01:13	2°♂05'44	1°19'21	min. Earth dist.	3631 Jul 11 21:31	20°♂33'51	29.29067 AU
retrograde	3623 Apr 05 15:40	4°♂32'52		direct	3631 Sep 30 06:49	19°♂10'39	
opposition	3623 Jun 23 11:11	3°♂10'46	1°23'44				

conjunction	3632 Jan 12 12:34	21° $\overline{3}$ 39'40	0°58'02	conjunction	3640 Jan 29 15:25	9° \approx 07'03	0°33'19
minimum elong	3632 Jan 12 12:35	21° $\overline{3}$ 39'40	0°58'01	minimum elong	3640 Jan 29 15:25	9° \approx 07'03	0°33'18
max. Earth dist.	3632 Jan 12 03:21	21° $\overline{3}$ 38'48	31.28775 AU	max. Earth dist.	3640 Jan 29 13:17	9° \approx 06'51	31.21588 AU
retrograde	3632 Apr 24 15:45	24° $\overline{3}$ 07'47		retrograde	3640 May 12 07:50	11° \approx 36'12	
opposition	3632 Jul 13 01:14	22° $\overline{3}$ 45'23	1°00'29	opposition	3640 Jul 31 06:41	10° \approx 13'15	0°33'48
min. Earth dist.	3632 Jul 13 09:11	22° $\overline{3}$ 44'51	29.28520 AU	min. Earth dist.	3640 Jul 31 08:37	10° \approx 13'07	29.21194 AU
direct	3632 Oct 01 17:09	21° $\overline{3}$ 21'39		direct	3640 Oct 19 13:47	8° \approx 49'39	
conjunction	3633 Jan 13 22:07	23° $\overline{3}$ 50'38	0°55'11	conjunction	3641 Jan 31 00:42	11° \approx 18'11	0°29'57
minimum elong	3633 Jan 13 22:07	23° $\overline{3}$ 50'38	0°55'11	minimum elong	3641 Jan 31 00:42	11° \approx 18'11	0°29'58
max. Earth dist.	3633 Jan 13 14:19	23° $\overline{3}$ 49'54	31.28155 AU	max. Earth dist.	3641 Jan 30 22:29	11° \approx 17'59	31.20803 AU
retrograde	3633 Apr 27 02:10	26° $\overline{3}$ 18'51		retrograde	3641 May 14 21:01	13° \approx 47'31	
opposition	3633 Jul 15 14:00	24° $\overline{3}$ 56'25	0°57'24	opposition	3641 Aug 02 19:31	12° \approx 24'32	0°30'10
min. Earth dist.	3633 Jul 15 22:01	24° $\overline{3}$ 55'53	29.27820 AU	min. Earth dist.	3641 Aug 02 20:11	12° \approx 24'29	29.20434 AU
direct	3633 Oct 04 05:59	23° $\overline{3}$ 32'43		direct	3641 Oct 21 23:14	11° \approx 01'00	
conjunction	3634 Jan 16 07:25	26° $\overline{3}$ 01'38	0°52'15	conjunction	3642 Feb 02 10:05	13° \approx 29'32	0°26'33
minimum elong	3634 Jan 16 07:26	26° $\overline{3}$ 01'38	0°52'15	minimum elong	3642 Feb 02 10:05	13° \approx 29'32	0°26'33
max. Earth dist.	3634 Jan 15 23:18	26° $\overline{3}$ 00'52	31.27393 AU	max. Earth dist.	3642 Feb 02 09:44	13° \approx 29'30	31.20051 AU
retrograde	3634 Apr 29 14:35	28° $\overline{3}$ 29'58			3642 Mar 17 04:32	15° \approx	
opposition	3634 Jul 18 02:39	27° $\overline{3}$ 07'28	0°54'14	retrograde	3642 May 17 08:28	15° \approx 59'02	
min. Earth dist.	3634 Jul 18 09:20	27° $\overline{3}$ 07'01	29.26980 AU		3642 Jul 21 08:36	15° \approx	
direct	3634 Oct 06 18:31	25° $\overline{3}$ 43'46		opposition	3642 Aug 05 08:28	14° \approx 36'02	0°26'31
conjunction	3635 Jan 18 16:56	28° $\overline{3}$ 12'37	0°49'15	min. Earth dist.	3642 Aug 05 08:52	14° \approx 36'00	29.19680 AU
minimum elong	3635 Jan 18 16:57	28° $\overline{3}$ 12'37	0°49'16	direct	3642 Oct 24 11:35	13° \approx 12'35	
max. Earth dist.	3635 Jan 18 09:53	28° $\overline{3}$ 11'57	31.26480 AU		3643 Jan 17 11:51	15° \approx	
retrograde	3635 Mar 12 15:42	0° \approx		conjunction	3643 Feb 04 19:33	15° \approx 41'06	0°23'06
	3635 May 02 00:59	0° \approx 41'04		minimum elong	3643 Feb 04 19:33	15° \approx 41'06	0°23'07
	3635 Jun 23 19:04	30° \approx		max. Earth dist.	3643 Feb 04 19:15	15° \approx 41'04	31.19299 AU
opposition	3635 Jul 20 15:17	29° $\overline{3}$ 18'29	0°51'00	retrograde	3643 May 19 22:20	18° \approx 10'47	
min. Earth dist.	3635 Jul 20 22:29	29° $\overline{3}$ 18'00	29.26008 AU	opposition	3643 Aug 07 21:10	16° \approx 47'45	0°22'48
direct	3635 Oct 09 06:22	27° $\overline{3}$ 54'47		min. Earth dist.	3643 Aug 07 20:05	16° \approx 47'49	29.18906 AU
	3636 Jan 10 15:57	0° \approx		direct	3643 Oct 26 23:44	15° \approx 24'21	
conjunction	3636 Jan 21 02:19	0° \approx 23'33	0°46'12	conjunction	3644 Feb 07 05:13	17° \approx 52'52	0°19'37
minimum elong	3636 Jan 21 02:19	0° \approx 23'33	0°46'11	minimum elong	3644 Feb 07 05:13	17° \approx 52'52	0°19'37
max. Earth dist.	3636 Jan 20 19:45	0° \approx 22'56	31.25474 AU	max. Earth dist.	3644 Feb 07 05:59	17° \approx 52'57	31.18483 AU
retrograde	3636 May 03 11:13	2° \approx 52'06		retrograde	3644 May 21 10:00	20° \approx 22'45	
opposition	3636 Jul 22 03:53	1° \approx 29'26	0°47'41	opposition	3644 Aug 09 10:14	18° \approx 59'40	0°19'03
min. Earth dist.	3636 Jul 22 09:18	1° \approx 29'04	29.24961 AU	min. Earth dist.	3644 Aug 09 09:36	18° \approx 59'43	29.18049 AU
direct	3636 Oct 10 18:38	0° \approx 05'43		direct	3644 Oct 28 11:13	17° \approx 36'19	
conjunction	3637 Jan 22 11:31	2° \approx 34'25	0°43'04	conjunction	3645 Feb 08 14:47	20° \approx 04'49	0°16'06
minimum elong	3637 Jan 22 11:31	2° \approx 34'25	0°43'04	minimum elong	3645 Feb 08 14:47	20° \approx 04'49	0°16'07
max. Earth dist.	3637 Jan 22 05:35	2° \approx 33'51	31.24411 AU	behind sun begin	3645 Feb 08 13:56	20° \approx 04'45	
retrograde	3637 May 05 21:34	5° \approx 03'06		behind sun end	3645 Feb 08 15:39	20° \approx 04'54	
opposition	3637 Jul 24 16:41	3° \approx 40'19	0°44'18	max. Earth dist.	3645 Feb 08 16:10	20° \approx 04'57	31.17581 AU
min. Earth dist.	3637 Jul 24 22:05	3° \approx 39'57	29.23912 AU	retrograde	3645 May 23 21:08	22° \approx 34'52	
direct	3637 Oct 13 04:57	2° \approx 16'37		opposition	3645 Aug 11 23:15	21° \approx 11'45	0°15'17
conjunction	3638 Jan 24 20:50	4° \approx 45'14	0°39'52	min. Earth dist.	3645 Aug 11 20:57	21° \approx 11'54	29.17081 AU
minimum elong	3638 Jan 24 20:50	4° \approx 45'14	0°39'52	direct	3645 Oct 30 23:45	19° \approx 48'26	
max. Earth dist.	3638 Jan 24 16:28	4° \approx 44'50	31.23392 AU				
retrograde	3638 May 08 08:07	7° \approx 14'03		conjunction	3646 Feb 11 00:34	22° \approx 16'54	0°12'34
opposition	3638 Jul 27 05:18	5° \approx 51'12	0°40'52	minimum elong	3646 Feb 11 00:34	22° \approx 16'54	0°12'34
min. Earth dist.	3638 Jul 27 08:53	5° \approx 50'58	29.22921 AU	behind sun begin	3646 Feb 10 20:22	22° \approx 16'31	
direct	3638 Oct 15 16:19	4° \approx 27'31		behind sun end	3646 Feb 11 04:45	22° \approx 17'17	
conjunction	3639 Jan 27 06:01	6° \approx 56'05	0°36'37	max. Earth dist.	3646 Feb 11 02:03	22° \approx 17'02	31.16542 AU
minimum elong	3639 Jan 27 06:01	6° \approx 56'05	0°36'38	retrograde	3646 May 26 08:37	24° \approx 47'07	
max. Earth dist.	3639 Jan 27 01:51	6° \approx 55'42	31.22445 AU	opposition	3646 Aug 14 12:23	23° \approx 23'54	0°11'29
retrograde	3639 May 10 20:21	9° \approx 25'04		min. Earth dist.	3646 Aug 14 10:30	23° \approx 24'02	29.15983 AU
opposition	3639 Jul 29 18:02	8° \approx 02'09	0°37'21	direct	3646 Nov 02 10:43	22° \approx 00'36	
min. Earth dist.	3639 Jul 29 21:04	8° \approx 01'57	29.22024 AU				
direct	3639 Oct 18 02:16	6° \approx 38'31		conjunction	3647 Feb 13 10:25	24° \approx 29'02	0°09'01
				minimum elong	3647 Feb 13 10:25	24° \approx 29'02	0°09'02
				behind sun begin	3647 Feb 13 04:56	24° \approx 28'32	
				behind sun end	3647 Feb 13 15:54	24° \approx 29'32	

max. Earth dist.	3647 Feb 13 13:04	24° 22 29'15	31.15378 AU	min. Earth dist.	3653 Aug 29 23:39	8° 11 48'34	29.07476 AU
retrograde	3647 May 28 19:39	26° 22 59'22		direct	3653 Nov 17 17:45	7° 11 24'41	
opposition	3647 Aug 17 01:24	25° 22 36'05	0°07'41				
min. Earth dist.	3647 Aug 16 22:09	25° 22 36'18	29.14740 AU	conjunction	3654 Feb 28 07:00	9° 11 52'49	0°-16'-1
direct	3647 Nov 04 23:09	24° 22 12'46		minimum elong	3654 Feb 28 07:00	9° 11 52'49	0°16'02
				behind sun begin	3654 Feb 28 06:00	9° 11 52'43	
conjunction	3648 Feb 15 20:06	26° 22 41'07	0°05'28	behind sun end	3654 Feb 28 08:00	9° 11 52'54	
minimum elong	3648 Feb 15 20:06	26° 22 41'07	0°05'28	max. Earth dist.	3654 Feb 28 15:52	9° 11 53'39	31.07015 AU
behind sun begin	3648 Feb 15 13:56	26° 22 40'34		retrograde	3654 Jun 13 09:15	12° 11 24'12	
behind sun end	3648 Feb 16 02:17	26° 22 41'41		opposition	3654 Sep 01 20:27	11° 11 00'16	0°-19'00
max. Earth dist.	3648 Feb 15 22:28	26° 22 41'18	31.14083 AU	min. Earth dist.	3654 Sep 01 10:37	11° 11 00'56	29.06575 AU
retrograde	3648 May 30 07:19	29° 22 11'36		direct	3654 Nov 20 06:08	9° 11 36'58	
opposition	3648 Aug 18 14:28	27° 22 48'11	0°03'51				
min. Earth dist.	3648 Aug 18 11:07	27° 22 48'25	29.13412 AU	conjunction	3655 Mar 02 17:00	12° 11 05'07	0°-19'-33
direct	3648 Nov 06 09:31	26° 22 24'50		minimum elong	3655 Mar 02 17:00	12° 11 05'07	0°19'34
				max. Earth dist.	3655 Mar 03 02:13	12° 11 05'59	31.06132 AU
conjunction	3649 Feb 17 05:58	28° 22 53'08	0°01'53	retrograde	3655 Jun 15 22:01	14° 11 36'42	
minimum elong	3649 Feb 17 05:58	28° 22 53'08	0°01'53	opposition	3655 Sep 04 09:37	13° 11 12'44	0°-22'-46
behind sun begin	3649 Feb 16 23:34	28° 22 52'33		min. Earth dist.	3655 Sep 03 23:59	13° 11 13'24	29.05714 AU
behind sun end	3649 Feb 17 12:22	28° 22 53'42		direct	3655 Nov 22 17:02	11° 11 49'30	
max. Earth dist.	3649 Feb 17 10:13	28° 22 53'29	31.12733 AU				
	3649 Mar 19 16:33	0° 11		conjunction	3656 Mar 04 03:12	14° 11 17'40	0°-23'-3
retrograde	3649 Jun 01 18:02	1° 11 23'44		minimum elong	3656 Mar 04 03:12	14° 11 17'40	0°23'05
opposition	3649 Aug 21 03:33	0° 11 00'11	0°00'02	max. Earth dist.	3656 Mar 04 13:54	14° 11 18'41	31.05272 AU
min. Earth dist.	3649 Aug 20 23:11	0° 11 00'29	29.12055 AU	retrograde	3656 Jun 17 09:51	16° 11 49'27	
	3649 Aug 21 06:21	30° 11		opposition	3656 Sep 05 22:40	15° 11 25'27	0°-26'-30
desc. node	3649 Aug 23 22:40	29° 11 55'38		min. Earth dist.	3656 Sep 05 11:34	15° 11 26'12	29.04840 AU
direct	3649 Nov 08 21:09	28° 11 36'49		direct	3656 Nov 24 05:20	14° 11 02'16	
	3650 Jan 21 01:36	0° 11					
conjunction	3650 Feb 19 15:33	1° 11 05'02	0°-1'-47	conjunction	3657 Mar 06 13:27	16° 11 30'27	0°-26'-31
minimum elong	3650 Feb 19 15:33	1° 11 05'02	0°01'49	minimum elong	3657 Mar 06 13:27	16° 11 30'27	0°26'32
behind sun begin	3650 Feb 19 09:09	1° 11 04'27		max. Earth dist.	3657 Mar 06 23:51	16° 11 31'26	31.04380 AU
behind sun end	3650 Feb 19 21:57	1° 11 05'37		retrograde	3657 Jun 19 22:28	19° 11 02'26	
max. Earth dist.	3650 Feb 19 19:44	1° 11 05'23	31.11399 AU	opposition	3657 Sep 08 11:57	17° 11 38'24	0°-30'-12
retrograde	3650 Jun 04 07:09	3° 11 35'47		min. Earth dist.	3657 Sep 08 00:51	17° 11 39'10	29.03929 AU
opposition	3650 Aug 23 16:35	2° 11 12'07	0°-3'-47	direct	3657 Nov 26 15:15	16° 11 15'16	
min. Earth dist.	3650 Aug 23 11:00	2° 11 12'30	29.10760 AU				
direct	3650 Nov 11 06:59	0° 11 48'43		conjunction	3658 Mar 08 23:58	18° 11 43'28	0°-29'-57
				minimum elong	3658 Mar 08 23:58	18° 11 43'28	0°29'59
conjunction	3651 Feb 22 01:27	3° 11 16'53	0°-5'-23	max. Earth dist.	3658 Mar 09 11:57	18° 11 44'36	31.03418 AU
minimum elong	3651 Feb 22 01:27	3° 11 16'53	0°05'23	retrograde	3658 Jun 22 09:50	21° 11 15'38	
behind sun begin	3651 Feb 21 19:15	3° 11 16'20		opposition	3658 Sep 11 01:10	19° 11 51'33	0°-33'-51
behind sun end	3651 Feb 22 07:38	3° 11 17'27		min. Earth dist.	3658 Sep 10 13:29	19° 11 52'21	29.02911 AU
max. Earth dist.	3651 Feb 22 07:28	3° 11 17'26	31.10136 AU	direct	3658 Nov 29 02:39	18° 11 28'27	
retrograde	3651 Jun 06 18:37	5° 11 47'46					
opposition	3651 Aug 26 05:28	4° 11 24'01	0°-7'-36	conjunction	3659 Mar 11 10:32	20° 11 56'39	0°-33'-21
min. Earth dist.	3651 Aug 25 23:24	4° 11 24'25	29.09550 AU	minimum elong	3659 Mar 11 10:32	20° 11 56'39	0°33'21
direct	3651 Nov 13 19:11	3° 11 00'37		max. Earth dist.	3659 Mar 11 21:49	20° 11 57'43	31.02347 AU
				retrograde	3659 Jun 24 23:42	23° 11 28'59	
conjunction	3652 Feb 24 11:14	5° 11 28'45	0°-8'-56	opposition	3659 Sep 13 14:13	22° 11 04'50	0°-37'-27
minimum elong	3652 Feb 24 11:14	5° 11 28'45	0°08'57	min. Earth dist.	3659 Sep 13 01:59	22° 11 05'41	29.01789 AU
behind sun begin	3652 Feb 24 05:43	5° 11 28'15		direct	3659 Dec 01 12:22	20° 11 41'44	
behind sun end	3652 Feb 24 16:45	5° 11 29'15					
max. Earth dist.	3652 Feb 24 17:38	5° 11 29'21	31.08991 AU	conjunction	3660 Mar 12 21:14	23° 11 09'56	0°-36'-41
retrograde	3652 Jun 08 08:45	7° 11 59'47		minimum elong	3660 Mar 12 21:13	23° 11 09'56	0°36'43
opposition	3652 Aug 27 18:25	6° 11 35'57	0°-11'-25	max. Earth dist.	3660 Mar 13 09:45	23° 11 11'07	31.01163 AU
min. Earth dist.	3652 Aug 27 10:29	6° 11 36'29	29.08462 AU	retrograde	3660 Jun 26 11:40	25° 11 42'25	
direct	3652 Nov 15 06:42	5° 11 12'34		opposition	3660 Sep 15 03:27	24° 11 18'10	0°-41'00
				min. Earth dist.	3660 Sep 14 15:13	24° 11 19'01	29.00562 AU
conjunction	3653 Feb 25 21:01	7° 11 40'43	0°-12'-29	direct	3660 Dec 03 00:40	22° 11 55'03	
minimum elong	3653 Feb 25 21:01	7° 11 40'43	0°12'29				
behind sun begin	3653 Feb 25 16:47	7° 11 40'20		conjunction	3661 Mar 15 07:43	25° 11 23'14	0°-39'-59
behind sun end	3653 Feb 26 01:15	7° 11 41'06		minimum elong	3661 Mar 15 07:43	25° 11 23'14	0°40'00
max. Earth dist.	3653 Feb 26 04:49	7° 11 41'26	31.07949 AU	max. Earth dist.	3661 Mar 15 20:17	25° 11 24'25	30.99919 AU
retrograde	3653 Jun 10 20:38	10° 11 11'55		retrograde	3661 Jun 29 02:11	27° 11 55'50	
opposition	3653 Aug 30 07:34	8° 11 48'01	0°-15'-13	opposition	3661 Sep 17 16:34	26° 11 31'30	0°-44'-29
				min. Earth dist.	3661 Sep 17 02:57	26° 11 32'25	28.99308 AU

direct	3661 Dec 05 12:11	25° ✕ 08'20		min. Earth dist.	3669 Oct 05 06:44	14° Υ 21'25	28.92233 AU
				opposition	3669 Oct 06 00:45	14° Υ 20'11	-1°-9'-40
conjunction	3662 Mar 17 18:23	27° ✕ 36'30	0°-43'-13	direct	3669 Dec 23 08:27	12° Υ 57'07	
minimum elong	3662 Mar 17 18:23	27° ✕ 36'30	0°43'14				
max. Earth dist.	3662 Mar 18 07:56	27° ✕ 37'47	30.98658 AU	conjunction	3670 Apr 04 10:30	15° Υ 25'25	-1°-6'-26
	3662 Jun 07 20:00	0° Υ		minimum elong	3670 Apr 04 10:29	15° Υ 25'25	1°06'27
retrograde	3662 Jul 01 14:11	0° Υ 09'14		max. Earth dist.	3670 Apr 05 05:07	15° Υ 27'11	30.91830 AU
	3662 Jul 25 17:44	30° ✕		retrograde	3670 Jul 19 22:19	17° Υ 59'16	
opposition	3662 Sep 20 05:35	28° ✕ 44'47	0°-47'-55	opposition	3670 Oct 08 13:39	16° Υ 34'28	-1°-12'-24
min. Earth dist.	3662 Sep 19 16:19	28° ✕ 45'42	28.98080 AU	min. Earth dist.	3670 Oct 07 18:46	16° Υ 35'46	28.91514 AU
direct	3662 Dec 07 23:01	27° ✕ 21'36		direct	3670 Dec 25 19:07	15° Υ 11'25	
conjunction	3663 Mar 20 05:07	29° ✕ 49'46	0°-46'-23	conjunction	3671 Apr 06 22:13	17° Υ 39'45	-1°-8'-57
minimum elong	3663 Mar 20 05:07	29° ✕ 49'46	0°46'24	minimum elong	3671 Apr 06 22:13	17° Υ 39'45	1°08'58
max. Earth dist.	3663 Mar 20 19:36	29° ✕ 51'08	30.97471 AU	max. Earth dist.	3671 Apr 07 17:11	17° Υ 41'33	30.91046 AU
	3663 Mar 24 17:01	0° Υ		retrograde	3671 Jul 22 11:02	20° Υ 13'44	
retrograde	3663 Jul 04 03:52	2° Υ 22'36		min. Earth dist.	3671 Oct 10 08:50	18° Υ 50'07	28.90681 AU
opposition	3663 Sep 22 18:32	0° Υ 58'05	0°-51'-16	opposition	3671 Oct 11 02:49	18° Υ 48'53	-1°-15'-2
min. Earth dist.	3663 Sep 22 03:25	0° Υ 59'07	28.96941 AU	direct	3671 Dec 28 05:56	17° Υ 25'49	
	3663 Oct 31 17:34	30° ✕					
direct	3663 Dec 10 12:20	29° ✕ 34'53		conjunction	3672 Apr 08 09:54	19° Υ 54'10	-1°-11'-21
	3664 Jan 18 01:14	0° Υ		minimum elong	3672 Apr 08 09:54	19° Υ 54'10	1°11'22
				max. Earth dist.	3672 Apr 09 05:10	19° Υ 56'00	30.90162 AU
conjunction	3664 Mar 21 15:43	2° Υ 03'02	0°-49'-29	retrograde	3672 Jul 24 01:40	22° Υ 28'15	
minimum elong	3664 Mar 21 15:43	2° Υ 03'02	0°49'30	opposition	3672 Oct 12 15:51	21° Υ 03'20	-1°-17'-33
max. Earth dist.	3664 Mar 22 06:32	2° Υ 04'26	30.96375 AU	min. Earth dist.	3672 Oct 11 20:42	21° Υ 04'39	28.89742 AU
retrograde	3664 Jul 05 17:44	4° Υ 36'01		direct	3672 Dec 29 19:24	19° Υ 40'15	
opposition	3664 Sep 24 07:38	3° Υ 11'25	0°-54'-33				
min. Earth dist.	3664 Sep 23 16:38	3° Υ 12'26	28.95919 AU	conjunction	3673 Apr 10 21:40	22° Υ 08'37	-1°-13'-39
direct	3664 Dec 12 00:01	1° Υ 48'13		minimum elong	3673 Apr 10 21:40	22° Υ 08'37	1°13'40
				max. Earth dist.	3673 Apr 11 16:34	22° Υ 10'24	30.89176 AU
conjunction	3665 Mar 24 02:37	4° Υ 16'23	0°-52'-31	retrograde	3673 Jul 26 15:47	24° Υ 42'47	
minimum elong	3665 Mar 24 02:37	4° Υ 16'23	0°52'32	min. Earth dist.	3673 Oct 14 10:36	23° Υ 19'02	28.88738 AU
max. Earth dist.	3665 Mar 24 19:04	4° Υ 17'56	30.95419 AU	opposition	3673 Oct 15 04:55	23° Υ 17'46	-1°-19'-56
retrograde	3665 Jul 08 05:42	6° Υ 49'30		direct	3674 Jan 01 07:11	21° Υ 54'39	
opposition	3665 Sep 26 20:35	5° Υ 24'50	0°-57'-45				
min. Earth dist.	3665 Sep 26 03:55	5° Υ 25'59	28.95025 AU	conjunction	3674 Apr 13 09:34	24° Υ 23'01	-1°-15'-50
direct	3665 Dec 14 12:43	4° Υ 01'40		minimum elong	3674 Apr 13 09:34	24° Υ 23'01	1°15'51
				max. Earth dist.	3674 Apr 14 05:33	24° Υ 24'55	30.88158 AU
conjunction	3666 Mar 26 13:26	6° Υ 29'50	0°-55'-28	retrograde	3674 Jul 29 04:31	26° Υ 57'15	
minimum elong	3666 Mar 26 13:26	6° Υ 29'50	0°55'30	opposition	3674 Oct 17 17:42	25° Υ 32'10	-1°-22'-13
max. Earth dist.	3666 Mar 27 05:43	6° Υ 31'22	30.94582 AU	min. Earth dist.	3674 Oct 16 22:15	25° Υ 33'31	28.87717 AU
retrograde	3666 Jul 10 18:26	9° Υ 03'06		direct	3675 Jan 03 20:29	24° Υ 09'00	
opposition	3666 Sep 29 09:40	7° Υ 38'24	-1°00'-52				
min. Earth dist.	3666 Sep 28 16:53	7° Υ 39'33	28.94250 AU	conjunction	3675 Apr 15 21:20	26° Υ 37'23	-1°-17'-54
direct	3666 Dec 16 23:02	6° Υ 15'15		minimum elong	3675 Apr 15 21:20	26° Υ 37'23	1°17'55
				max. Earth dist.	3675 Apr 16 16:43	26° Υ 39'13	30.87151 AU
conjunction	3667 Mar 29 00:35	8° Υ 43'26	0°-58'-21	retrograde	3675 Jul 31 17:58	29° Υ 11'41	
minimum elong	3667 Mar 29 00:34	8° Υ 43'26	0°58'21	min. Earth dist.	3675 Oct 19 11:19	27° Υ 47'52	28.86755 AU
max. Earth dist.	3667 Mar 29 18:38	8° Υ 45'09	30.93843 AU	opposition	3675 Oct 20 06:29	27° Υ 46'32	-1°-24'-22
retrograde	3667 Jul 13 05:59	11° Υ 16'51		direct	3676 Jan 06 07:35	26° Υ 23'20	
opposition	3667 Oct 01 22:32	9° Υ 52'08	-1°-3'-54				
min. Earth dist.	3667 Oct 01 04:59	9° Υ 53'20	28.93545 AU	conjunction	3676 Apr 17 09:20	28° Υ 51'44	-1°-19'-51
direct	3667 Dec 19 10:54	8° Υ 29'01		minimum elong	3676 Apr 17 09:20	28° Υ 51'44	1°19'52
				max. Earth dist.	3676 Apr 18 06:19	28° Υ 53'44	30.86226 AU
conjunction	3668 Mar 30 11:40	10° Υ 57'14	-1°-1'-8		3676 May 18 10:36	0° ♄	
minimum elong	3668 Mar 30 11:40	10° Υ 57'14	1°01'09	retrograde	3676 Aug 02 06:16	1° ♄ 26'07	
max. Earth dist.	3668 Mar 31 05:18	10° Υ 58'54	30.93173 AU	opposition	3676 Oct 21 19:13	0° ♄ 00'55	-1°-26'-24
retrograde	3668 Jul 14 20:13	13° Υ 30'48		min. Earth dist.	3676 Oct 20 23:18	0° ♄ 02'18	28.85886 AU
opposition	3668 Oct 03 11:37	12° Υ 06'03	-1°-6'-50		3676 Oct 22 08:28	30° ✕	
min. Earth dist.	3668 Oct 02 17:27	12° Υ 07'18	28.92899 AU	direct	3677 Jan 07 20:12	28° Υ 37'42	
direct	3668 Dec 20 20:56	10° Υ 42'58			3677 Mar 20 19:16	0° ♄	
conjunction	3669 Apr 01 22:57	13° Υ 11'13	-1°-3'-50	conjunction	3677 Apr 19 21:08	1° ♄ 06'08	-1°-21'-41
minimum elong	3669 Apr 01 22:57	13° Υ 11'13	1°03'51	minimum elong	3677 Apr 19 21:08	1° ♄ 06'08	1°21'42
max. Earth dist.	3669 Apr 02 17:54	13° Υ 13'01	30.92516 AU	max. Earth dist.	3677 Apr 20 17:36	1° ♄ 08'04	30.85422 AU
retrograde	3669 Jul 17 07:44	15° Υ 44'57		retrograde	3677 Aug 04 20:00	3° ♄ 40'36	

min. Earth dist.	3677 Oct 23 11:32	2°8'16"47	28.85153 AU	opposition	3685 Nov 11 12:43	20°8'16"00	-1°-38'-24
opposition	3677 Oct 24 07:56	2°8'15"22	-1°-28'-17	min. Earth dist.	3685 Nov 10 16:22	20°8'17"26	28.81309 AU
direct	3678 Jan 10 06:47	0°8'52"07		direct	3686 Jan 28 05:16	18°8'52"41	
conjunction	3678 Apr 22 09:19	3°8'20"36	-1°-23'-24	conjunction	3686 May 10 14:14	21°8'21"38	-1°-32'-19
minimum elong	3678 Apr 22 09:19	3°8'20"36	1°23'24	minimum elong	3686 May 10 14:14	21°8'21"38	1°32'20
max. Earth dist.	3678 Apr 23 07:03	3°8'22"40	30.84741 AU	max. Earth dist.	3686 May 11 11:10	21°8'23"36	30.80894 AU
retrograde	3678 Aug 07 06:57	5°8'55"10		retrograde	3686 Aug 25 22:03	23°8'56"37	
opposition	3678 Oct 26 20:29	4°8'29"55	-1°-30'-3	min. Earth dist.	3686 Nov 13 04:54	22°8'32"39	28.80672 AU
min. Earth dist.	3678 Oct 26 00:06	4°8'31"20	28.84538 AU	opposition	3686 Nov 14 00:59	22°8'31"14	-1°-39'-1
direct	3679 Jan 12 18:08	3°8'06"41		direct	3687 Jan 30 16:36	21°8'07"50	
conjunction	3679 Apr 24 21:28	5°8'35"13	-1°-24'-59	conjunction	3687 May 13 03:15	23°8'36"48	-1°-32'-49
minimum elong	3679 Apr 24 21:28	5°8'35"13	1°25'00	minimum elong	3687 May 13 03:15	23°8'36"48	1°32'50
max. Earth dist.	3679 Apr 25 18:58	5°8'37"16	30.84194 AU	max. Earth dist.	3687 May 14 01:02	23°8'38"51	30.80257 AU
retrograde	3679 Aug 09 21:21	8°8'09"53		retrograde	3687 Aug 28 09:25	26°8'11"46	
min. Earth dist.	3679 Oct 28 11:40	6°8'46"07	28.84049 AU	opposition	3687 Nov 16 13:18	24°8'46"20	-1°-39'-28
opposition	3679 Oct 29 09:05	6°8'44"37	-1°-31'-40	min. Earth dist.	3687 Nov 15 17:33	24°8'47"43	28.80060 AU
direct	3680 Jan 15 04:13	5°8'21"24		direct	3688 Feb 02 05:02	23°8'22"52	
conjunction	3680 Apr 26 09:37	7°8'50"00	-1°-26'-26	conjunction	3688 May 14 16:04	25°8'51"50	-1°-33'-10
minimum elong	3680 Apr 26 09:37	7°8'50"00	1°26'27	minimum elong	3688 May 14 16:04	25°8'51"50	1°33'11
max. Earth dist.	3680 Apr 27 07:49	7°8'52"06	30.83743 AU	max. Earth dist.	3688 May 15 13:16	25°8'53"50	30.79694 AU
retrograde	3680 Aug 11 09:44	10°8'24"46		retrograde	3688 Aug 29 23:40	28°8'26"47	
opposition	3680 Oct 30 21:51	8°8'59"31	-1°-33'-9	min. Earth dist.	3688 Nov 17 05:02	27°8'02"44	28.79550 AU
min. Earth dist.	3680 Oct 30 01:09	9°8'00"58	28.83641 AU	opposition	3688 Nov 18 01:30	27°8'01"18	-1°-39'-46
direct	3681 Jan 16 14:24	7°8'36"18		direct	3689 Feb 03 16:10	25°8'37"45	
conjunction	3681 Apr 28 22:07	10°8'04"59	-1°-27'-45	conjunction	3689 May 17 05:08	28°8'06"46	-1°-33'-23
minimum elong	3681 Apr 28 22:07	10°8'04"59	1°27'46	minimum elong	3689 May 17 05:08	28°8'06"46	1°33'25
max. Earth dist.	3681 Apr 29 20:39	10°8'07"07	30.83373 AU	max. Earth dist.	3689 May 18 02:48	28°8'08"48	30.79233 AU
retrograde	3681 Aug 14 00:30	12°8'39"50		retrograde	3689 Jul 12 04:17	0°8'11"42	
opposition	3681 Nov 02 10:21	11°8'14"36	-1°-34'-30	retrograde	3689 Sep 01 10:40	0°8'11"42	
min. Earth dist.	3681 Nov 01 12:41	11°8'16"07	28.83285 AU	retrograde	3689 Oct 24 05:20	30°8'11"42	
direct	3682 Jan 19 03:19	9°8'51"24		retrograde	3689 Nov 20 13:36	29°8'16"11	-1°-39'-56
conjunction	3682 May 01 10:42	12°8'20"10	-1°-28'-56	opposition	3689 Nov 19 17:59	29°8'17"33	28.79162 AU
minimum elong	3682 May 01 10:42	12°8'20"10	1°28'58	min. Earth dist.	3690 Feb 06 02:57	27°8'52"36	
max. Earth dist.	3682 May 02 08:43	12°8'22"15	30.83006 AU	direct	3690 May 10 04:23	0°8'52"36	
retrograde	3682 Aug 16 14:33	14°8'55"06		retrograde	3690 May 19 18:17	0°8'52"36	
opposition	3682 Nov 04 23:03	13°8'29"52	-1°-35'-42	conjunction	3690 May 19 18:17	0°8'52"36	-1°-33'-28
min. Earth dist.	3682 Nov 04 02:33	13°8'31"17	28.82911 AU	minimum elong	3690 May 19 18:17	0°8'52"36	1°33'29
direct	3683 Jan 21 14:20	12°8'06"39		max. Earth dist.	3690 May 20 16:04	0°8'52"36	30.78926 AU
conjunction	3683 May 03 23:31	14°8'35"30	-1°-29'-59	retrograde	3690 Sep 04 00:07	2°8'56"33	
minimum elong	3683 May 03 23:31	14°8'35"30	1°30'00	min. Earth dist.	3690 Nov 22 04:58	1°8'32"29	28.78926 AU
max. Earth dist.	3683 May 04 22:05	14°8'37"38	30.82600 AU	opposition	3690 Nov 23 01:35	1°8'31"02	-1°-39'-56
retrograde	3683 May 14 19:00	15°8'37"38		direct	3691 Feb 08 15:14	0°8'07"25	
retrograde	3683 Aug 19 04:24	17°8'10"29		conjunction	3691 May 22 07:17	2°8'36"31	-1°-33'-24
opposition	3683 Nov 07 11:33	15°8'45"15	-1°-36'-45	minimum elong	3691 May 22 07:17	2°8'36"31	1°33'25
min. Earth dist.	3683 Nov 06 14:22	15°8'46"43	28.82461 AU	max. Earth dist.	3691 May 23 04:46	2°8'38"33	30.78758 AU
direct	3683 Dec 06 00:45	15°8'46"43		retrograde	3691 Sep 06 12:48	5°8'11"26	
direct	3684 Jan 24 03:24	14°8'22"01		opposition	3691 Nov 25 13:39	3°8'45"56	-1°-39'-47
	3684 Mar 11 15:08	15°8'22"01		min. Earth dist.	3691 Nov 24 17:58	3°8'47"19	28.78843 AU
conjunction	3684 May 05 12:19	16°8'50"55	-1°-30'-54	direct	3692 Feb 11 01:27	2°8'22"17	
minimum elong	3684 May 05 12:19	16°8'50"55	1°30'55	conjunction	3692 May 23 20:33	4°8'51"29	-1°-33'-11
max. Earth dist.	3684 May 06 09:38	16°8'52"56	30.82106 AU	minimum elong	3692 May 23 20:33	4°8'51"29	1°33'12
retrograde	3684 Aug 20 19:26	19°8'25"56		max. Earth dist.	3692 May 24 18:45	4°8'53"34	30.78757 AU
min. Earth dist.	3684 Nov 08 03:57	18°8'02"04	28.81929 AU	retrograde	3692 Sep 08 02:41	7°8'26"23	
opposition	3684 Nov 09 00:14	18°8'00"39	-1°-37'-39	min. Earth dist.	3692 Nov 26 04:59	6°8'02"23	28.78901 AU
direct	3685 Jan 25 15:19	16°8'37"23		opposition	3692 Nov 27 01:32	6°8'00"56	-1°-39'-28
conjunction	3685 May 08 01:18	19°8'06"19	-1°-31'-41	direct	3693 Feb 12 14:03	4°8'37"17	
minimum elong	3685 May 08 01:18	19°8'06"19	1°31'42	conjunction	3693 May 26 09:48	7°8'06"34	-1°-32'-49
max. Earth dist.	3685 May 08 23:30	19°8'08"25	30.81529 AU	minimum elong	3693 May 26 09:48	7°8'06"34	1°32'51
retrograde	3685 Aug 23 08:42	21°8'41"20		max. Earth dist.	3693 May 27 06:57	7°8'08"34	30.78875 AU
				retrograde	3693 Sep 10 17:33	9°8'41"30	

opposition	3693 Nov 29 13:33	8°II16'05	-1°-39'00	conjunction	3702 Jun 17 13:38	27°II25'35	-1°-23'-20
min. Earth dist.	3693 Nov 28 17:54	8°II17'28	28.79067 AU	minimum elong	3702 Jun 17 13:38	27°II25'35	1°23'20
direct	3694 Feb 15 01:24	6°II52'27		max. Earth dist.	3702 Jun 18 06:22	27°II27'09	30.79711 AU
				retrograde	3702 Oct 02 14:28	29°II59'57	
conjunction	3694 May 28 23:24	9°II21'51	-1°-32'-19	opposition	3702 Dec 20 22:46	28°II34'45	-1°-28'-12
minimum elong	3694 May 28 23:24	9°II21'51	1°32'20	min. Earth dist.	3702 Dec 20 07:30	28°II35'49	28.79932 AU
max. Earth dist.	3694 May 29 21:23	9°II23'55	30.79067 AU	direct	3703 Mar 08 11:57	27°II10'43	
retrograde	3694 Sep 13 07:06	11°II56'46					
min. Earth dist.	3694 Dec 01 05:45	10°II32'48	28.79264 AU	conjunction	3703 Jun 20 03:33	29°II40'39	-1°-21'-37
opposition	3694 Dec 02 01:19	10°II31'25	-1°-38'-23	minimum elong	3703 Jun 20 03:33	29°II40'39	1°21'39
direct	3695 Feb 17 14:45	9°II07'48		max. Earth dist.	3703 Jun 20 21:04	29°II42'18	30.80030 AU
					3703 Jun 28 17:57	0°☾	
conjunction	3695 May 31 12:58	11°II37'18	-1°-31'-40	retrograde	3703 Oct 05 03:02	2°☾14'55	
minimum elong	3695 May 31 12:58	11°II37'18	1°31'42	opposition	3703 Dec 23 10:06	0°☾49'45	-1°-26'-18
max. Earth dist.	3695 Jun 01 09:24	11°II39'13	30.79270 AU	min. Earth dist.	3703 Dec 22 18:41	0°☾50'51	28.80316 AU
retrograde	3695 Sep 15 21:33	14°II12'13			3704 Jan 23 18:05	30°RII	
opposition	3695 Dec 04 13:17	12°II46'56	-1°-37'-37	direct	3704 Mar 10 01:07	29°II25'42	
min. Earth dist.	3695 Dec 03 18:19	12°II48'16	28.79455 AU		3704 Apr 24 07:42	0°☾	
direct	3696 Feb 20 01:48	11°II23'18					
				conjunction	3704 Jun 21 17:14	1°☾55'41	-1°-19'-47
conjunction	3696 Jun 02 02:41	13°II52'53	-1°-30'-53	minimum elong	3704 Jun 21 17:14	1°☾55'41	1°19'47
minimum elong	3696 Jun 02 02:41	13°II52'53	1°30'54	max. Earth dist.	3704 Jun 22 09:23	1°☾57'12	30.80499 AU
max. Earth dist.	3696 Jun 02 23:30	13°II54'51	30.79422 AU	retrograde	3704 Oct 06 17:17	4°☾29'52	
retrograde	3696 Sep 17 10:25	16°II27'47		opposition	3704 Dec 24 21:29	3°☾04'44	-1°-24'-16
min. Earth dist.	3696 Dec 05 07:10	15°II03'49	28.79563 AU	min. Earth dist.	3704 Dec 24 06:28	3°☾05'48	28.80857 AU
opposition	3696 Dec 06 01:16	15°II02'32	-1°-36'-42	direct	3705 Mar 12 12:09	1°☾40'40	
direct	3697 Feb 21 14:35	13°II38'54					
				conjunction	3705 Jun 24 07:19	4°☾10'44	-1°-17'-49
conjunction	3697 Jun 04 16:32	16°II08'33	-1°-29'-58	minimum elong	3705 Jun 24 07:20	4°☾10'44	1°17'51
minimum elong	3697 Jun 04 16:32	16°II08'33	1°29'59	max. Earth dist.	3705 Jun 25 00:06	4°☾12'18	30.81103 AU
max. Earth dist.	3697 Jun 05 11:49	16°II10'22	30.79501 AU	retrograde	3705 Oct 09 06:27	6°☾44'49	
retrograde	3697 Sep 20 01:18	18°II43'23		opposition	3705 Dec 27 08:41	5°☾19'45	-1°-22'-6
opposition	3697 Dec 08 13:00	17°II18'09	-1°-35'-39	min. Earth dist.	3705 Dec 26 18:26	5°☾20'46	28.81508 AU
min. Earth dist.	3697 Dec 07 18:56	17°II19'26	28.79599 AU	direct	3706 Mar 15 01:27	3°☾55'41	
direct	3698 Feb 24 02:07	15°II54'28					
				conjunction	3706 Jun 26 21:20	6°☾25'50	-1°-15'-44
conjunction	3698 Jun 07 06:28	18°II24'11	-1°-28'-54	minimum elong	3706 Jun 26 21:20	6°☾25'50	1°15'45
minimum elong	3698 Jun 07 06:28	18°II24'11	1°28'55	max. Earth dist.	3706 Jun 27 12:38	6°☾27'16	30.81811 AU
max. Earth dist.	3698 Jun 08 01:32	18°II25'58	30.79499 AU	retrograde	3706 Oct 11 20:48	8°☾59'50	
retrograde	3698 Sep 22 12:01	20°II58'57		opposition	3706 Dec 29 19:54	7°☾34'51	-1°-19'-48
min. Earth dist.	3698 Dec 10 08:13	19°II34'54	28.79572 AU	min. Earth dist.	3706 Dec 29 05:38	7°☾35'52	28.82240 AU
opposition	3698 Dec 11 00:50	19°II33'43	-1°-34'-26	direct	3707 Mar 17 13:25	6°☾10'46	
direct	3699 Feb 26 13:29	18°II09'59					
				conjunction	3707 Jun 29 11:22	8°☾41'01	-1°-13'-32
conjunction	3699 Jun 09 20:11	20°II39'43	-1°-27'-42	minimum elong	3707 Jun 29 11:22	8°☾41'01	1°13'33
minimum elong	3699 Jun 09 20:12	20°II39'43	1°27'44	max. Earth dist.	3707 Jun 30 02:35	8°☾42'26	30.82546 AU
max. Earth dist.	3699 Jun 10 14:41	20°II41'27	30.79474 AU	retrograde	3707 Oct 14 08:28	11°☾14'56	
retrograde	3699 Sep 25 00:51	23°II14'23		opposition	3708 Jan 01 07:16	9°☾50'02	-1°-17'-23
opposition	3699 Dec 13 12:25	21°II49'10	-1°-33'-5	min. Earth dist.	3707 Dec 31 18:34	9°☾50'56	28.82967 AU
min. Earth dist.	3699 Dec 12 19:19	21°II50'23	28.79546 AU	direct	3708 Mar 19 00:50	8°☾25'58	
direct	3700 Mar 01 01:45	20°II25'21					
				conjunction	3708 Jul 01 01:37	10°☾56'16	-1°-11'-12
conjunction	3700 Jun 12 09:58	22°II55'08	-1°-26'-23	minimum elong	3708 Jul 01 01:37	10°☾56'16	1°11'13
minimum elong	3700 Jun 12 09:59	22°II55'08	1°26'24	max. Earth dist.	3708 Jul 01 15:41	10°☾57'35	30.83261 AU
max. Earth dist.	3700 Jun 13 03:47	22°II56'48	30.79464 AU	retrograde	3708 Oct 15 22:18	13°☾30'05	
retrograde	3700 Sep 27 12:48	25°II29'43		opposition	3709 Jan 02 18:22	12°☾05'16	-1°-14'-51
min. Earth dist.	3700 Dec 15 08:20	24°II05'36	28.79572 AU	min. Earth dist.	3709 Jan 02 05:40	12°☾06'10	28.83638 AU
opposition	3700 Dec 16 00:00	24°II04'29	-1°-31'-36	direct	3709 Mar 21 12:54	10°☾41'10	
direct	3701 Mar 03 11:26	22°II40'35					
				conjunction	3709 Jul 03 15:56	13°☾11'33	-1°-8'-47
conjunction	3701 Jun 14 23:52	25°II10'25	-1°-24'-55	minimum elong	3709 Jul 03 15:57	13°☾11'33	1°08'49
minimum elong	3701 Jun 14 23:52	25°II10'25	1°24'57	max. Earth dist.	3709 Jul 04 04:48	13°☾12'45	30.83880 AU
max. Earth dist.	3701 Jun 15 17:52	25°II12'06	30.79539 AU	retrograde	3709 Oct 18 10:11	15°☾45'15	
retrograde	3701 Sep 30 01:22	27°II44'53		opposition	3710 Jan 05 05:41	14°☾20'29	-1°-12'-12
opposition	3701 Dec 18 11:23	26°II19'40	-1°-29'-58	min. Earth dist.	3710 Jan 04 18:55	14°☾21'15	28.84207 AU
min. Earth dist.	3701 Dec 17 19:08	26°II20'49	28.79687 AU	direct	3710 Mar 23 22:55	12°☾56'20	
direct	3702 Mar 06 00:35	24°II55'42					

conjunction	3710 Jul 06 06:18	15° $\mathring{26}'46''$	-1°-6'-15	conjunction	3718 Jul 24 23:04	3° $\mathring{24}'09''$	0°-42'-52
minimum elong	3710 Jul 06 06:19	15° $\mathring{26}'46''$	1°06'16	minimum elong	3718 Jul 24 23:05	3° $\mathring{24}'09''$	0°42'53
max. Earth dist.	3710 Jul 06 18:33	15° $\mathring{27}'55''$	30.84406 AU	max. Earth dist.	3718 Jul 25 05:14	3° $\mathring{24}'43''$	30.89223 AU
retrograde	3710 Oct 20 22:04	18° $\mathring{00}'19''$		retrograde	3718 Nov 08 01:49	5° $\mathring{56}'32''$	
opposition	3711 Jan 07 16:42	16° $\mathring{35}'37''$	-1°-9'-26	opposition	3719 Jan 25 07:07	4° $\mathring{32}'14''$	0°-44'-5
min. Earth dist.	3711 Jan 07 05:55	16° $\mathring{36}'23''$	28.84676 AU	min. Earth dist.	3719 Jan 25 02:13	4° $\mathring{32}'35''$	28.89754 AU
direct	3711 Mar 26 12:09	15° $\mathring{11}'24''$		direct	3719 Apr 13 11:14	3° $\mathring{20}'42''$	
conjunction	3711 Jul 08 20:29	17° $\mathring{41}'53''$	-1°-3'-38	conjunction	3719 Jul 27 13:10	5° $\mathring{38}'37''$	0°-39'-37
minimum elong	3711 Jul 08 20:29	17° $\mathring{41}'53''$	1°03'39	minimum elong	3719 Jul 27 13:10	5° $\mathring{38}'37''$	0°39'38
max. Earth dist.	3711 Jul 09 06:55	17° $\mathring{42}'52''$	30.84846 AU	max. Earth dist.	3719 Jul 27 18:54	5° $\mathring{39}'09''$	30.90264 AU
retrograde	3711 Oct 23 10:09	20° $\mathring{15}'18''$		retrograde	3719 Nov 10 13:07	8° $\mathring{10}'54''$	
opposition	3712 Jan 10 03:49	18° $\mathring{50}'37''$	-1°-6'-35	opposition	3720 Jan 27 17:39	6° $\mathring{46}'42''$	0°-40'-34
min. Earth dist.	3712 Jan 09 18:30	18° $\mathring{51}'16''$	28.85098 AU	min. Earth dist.	3720 Jan 27 12:40	6° $\mathring{47}'03''$	28.90797 AU
direct	3712 Mar 27 23:05	17° $\mathring{26}'20''$		direct	3720 Apr 15 00:01	5° $\mathring{22}'10''$	
conjunction	3712 Jul 10 10:43	19° $\mathring{56}'51''$	-1°00'-55	conjunction	3720 Jul 29 03:12	7° $\mathring{53}'10''$	0°-36'-17
minimum elong	3712 Jul 10 10:43	19° $\mathring{56}'51''$	1°00'55	minimum elong	3720 Jul 29 03:13	7° $\mathring{53}'10''$	0°36'18
max. Earth dist.	3712 Jul 10 21:21	19° $\mathring{57}'51''$	30.85260 AU	max. Earth dist.	3720 Jul 29 07:12	7° $\mathring{53}'32''$	30.91299 AU
retrograde	3712 Oct 24 22:01	22° $\mathring{30}'07''$		retrograde	3720 Nov 12 00:47	10° $\mathring{25}'19''$	
opposition	3713 Jan 11 14:45	21° $\mathring{05}'27''$	-1°-3'-38	opposition	3721 Jan 29 04:23	9° $\mathring{20}'12''$	0°-36'-59
min. Earth dist.	3713 Jan 11 05:49	21° $\mathring{06}'05''$	28.85496 AU	min. Earth dist.	3721 Jan 29 01:00	9° $\mathring{20}'27''$	28.91814 AU
direct	3713 Mar 30 12:09	19° $\mathring{41}'06''$		direct	3721 Apr 17 09:55	7° $\mathring{36}'39''$	
conjunction	3713 Jul 13 00:52	22° $\mathring{11}'40''$	0°-58'-6	conjunction	3721 Jul 31 17:31	10° $\mathring{20}'43''$	0°-32'-55
minimum elong	3713 Jul 13 00:52	22° $\mathring{11}'40''$	0°58'08	minimum elong	3721 Jul 31 17:31	10° $\mathring{20}'43''$	0°32'56
max. Earth dist.	3713 Jul 13 09:36	22° $\mathring{12}'29''$	30.85678 AU	max. Earth dist.	3721 Jul 31 21:16	10° $\mathring{20}'08''$	30.92278 AU
retrograde	3713 Oct 27 11:19	24° $\mathring{44}'46''$		retrograde	3721 Nov 14 12:05	12° $\mathring{39}'42''$	
opposition	3714 Jan 14 01:32	23° $\mathring{20}'08''$	-1°00'-35	opposition	3722 Jan 31 14:56	11° $\mathring{21}'54''$	0°-33'-21
min. Earth dist.	3714 Jan 13 17:24	23° $\mathring{20}'43''$	28.85939 AU	min. Earth dist.	3722 Jan 31 12:13	11° $\mathring{21}'52''$	28.92737 AU
direct	3714 Apr 01 23:26	21° $\mathring{55}'43''$		direct	3722 Apr 19 22:02	9° $\mathring{51}'05''$	
conjunction	3714 Jul 15 15:05	24° $\mathring{26}'20''$	0°-55'-13	conjunction	3722 Aug 03 07:36	12° $\mathring{22}'11''$	0°-29'-30
minimum elong	3714 Jul 15 15:06	24° $\mathring{26}'20''$	0°55'13	minimum elong	3722 Aug 03 07:36	12° $\mathring{22}'11''$	0°29'31
max. Earth dist.	3714 Jul 16 00:16	24° $\mathring{27}'11''$	30.86150 AU	max. Earth dist.	3722 Aug 03 09:07	12° $\mathring{22}'20''$	30.93159 AU
retrograde	3714 Oct 29 23:42	26° $\mathring{59}'17''$		retrograde	3722 Nov 17 00:17	14° $\mathring{54}'01''$	
opposition	3715 Jan 16 12:23	25° $\mathring{34}'40''$	0°-57'-27	opposition	3723 Feb 03 01:38	13° $\mathring{30}'02''$	0°-29'-41
min. Earth dist.	3715 Jan 16 05:04	25° $\mathring{35}'12''$	28.86450 AU	min. Earth dist.	3723 Feb 02 23:56	13° $\mathring{30}'10''$	28.93577 AU
direct	3715 Apr 04 13:13	24° $\mathring{10}'12''$		direct	3723 Apr 22 09:27	12° $\mathring{20}'52''$	
conjunction	3715 Jul 18 04:55	26° $\mathring{40}'52''$	0°-52'-14	conjunction	3723 Aug 05 21:36	14° $\mathring{36}'31''$	0°-26'-2
minimum elong	3715 Jul 18 04:55	26° $\mathring{40}'52''$	0°52'16	minimum elong	3723 Aug 05 21:36	14° $\mathring{36}'31''$	0°26'04
max. Earth dist.	3715 Jul 18 12:33	26° $\mathring{41}'34''$	30.86725 AU	max. Earth dist.	3723 Aug 05 23:12	14° $\mathring{36}'40''$	30.93951 AU
retrograde	3715 Nov 01 13:02	29° $\mathring{13}'40''$		retrograde	3723 Aug 16 10:37	15° $\mathring{00}'00''$	
opposition	3716 Jan 18 23:07	27° $\mathring{49}'06''$	0°-54'-13	opposition	3723 Nov 19 11:16	17° $\mathring{08}'10''$	
min. Earth dist.	3716 Jan 18 15:38	27° $\mathring{49}'38''$	28.87086 AU	min. Earth dist.	3724 Feb 05 12:14	15° $\mathring{44}'13''$	0°-25'-58
direct	3716 Apr 06 01:38	26° $\mathring{24}'35''$		direct	3724 Feb 05 11:46	15° $\mathring{44}'15''$	28.94325 AU
conjunction	3716 Jul 19 19:01	28° $\mathring{55}'19''$	0°-49'-12	conjunction	3724 Mar 03 21:28	15° $\mathring{48}'00''$	
minimum elong	3716 Jul 19 19:01	28° $\mathring{55}'19''$	0°49'13	minimum elong	3724 Apr 23 23:08	14° $\mathring{21}'31''$	
max. Earth dist.	3716 Jul 20 02:46	28° $\mathring{56}'02''$	30.87422 AU	max. Earth dist.	3724 Jun 13 00:59	15° $\mathring{00}'00''$	
retrograde	3716 Aug 18 13:59	0° $\mathring{00}'00''$		retrograde	3724 Aug 07 11:32	16° $\mathring{50}'39''$	0°-22'-33
opposition	3716 Nov 03 00:33	1° $\mathring{27}'58''$		opposition	3724 Aug 07 11:32	16° $\mathring{50}'39''$	0°22'34
min. Earth dist.	3717 Jan 20 09:48	0° $\mathring{03}'28''$	0°-50'-55	min. Earth dist.	3724 Aug 07 11:02	16° $\mathring{50}'36''$	30.94683 AU
direct	3717 Jan 20 03:39	0° $\mathring{03}'55''$	28.87852 AU	direct	3724 Nov 20 23:58	19° $\mathring{22}'06''$	
conjunction	3717 Jan 22 10:50	30° $\mathring{48}'00''$		conjunction	3725 Feb 06 22:33	17° $\mathring{58}'11''$	0°-22'-13
minimum elong	3717 Jan 22 10:50	30° $\mathring{48}'00''$		minimum elong	3725 Feb 06 22:21	17° $\mathring{58}'11''$	28.95037 AU
max. Earth dist.	3717 Apr 08 13:17	28° $\mathring{38}'56''$		max. Earth dist.	3725 Apr 26 11:32	16° $\mathring{33}'24''$	
retrograde	3717 Jun 20 01:19	0° $\mathring{00}'00''$		retrograde			
opposition				opposition			
min. Earth dist.				min. Earth dist.			
direct				direct			
conjunction	3717 Jul 22 09:05	1° $\mathring{20}'43''$	0°-46'-4	conjunction	3725 Aug 10 01:34	19° $\mathring{20}'43''$	0°-19'-2
minimum elong	3717 Jul 22 09:05	1° $\mathring{20}'43''$	0°46'06	minimum elong	3725 Aug 10 01:34	19° $\mathring{20}'43''$	0°19'04
max. Earth dist.	3717 Jul 22 15:50	1° $\mathring{21}'02''$	30.88270 AU	max. Earth dist.	3725 Aug 10 00:52	19° $\mathring{20}'42''$	30.95381 AU
retrograde	3717 Nov 05 14:30	3° $\mathring{24}'14''$		retrograde	3725 Nov 23 11:06	21° $\mathring{35}'48''$	
opposition	3718 Jan 22 20:25	2° $\mathring{17}'50''$	0°-47'-33	opposition	3726 Feb 09 09:02	20° $\mathring{11}'54''$	0°-18'-26
min. Earth dist.	3718 Jan 22 13:52	2° $\mathring{18}'18''$	28.88754 AU	min. Earth dist.	3726 Feb 09 10:27	20° $\mathring{11}'48''$	28.95738 AU
direct	3718 Apr 11 01:32	0° $\mathring{53}'17''$		direct	3726 Apr 29 00:00	18° $\mathring{47}'03''$	

conjunction	3726 Aug 12 15:13	21°018'12	0°-15'-30	minimum elong	3732 Aug 26 00:37	4°07'37"24	0°06'07
minimum elong	3726 Aug 12 15:13	21°018'12	0°15'30	behind sun begin	3732 Aug 25 18:22	4°07'36"51	
behind sun begin	3726 Aug 12 14:01	21°018'05		behind sun end	3732 Aug 26 06:52	4°07'37"58	
behind sun end	3726 Aug 12 16:25	21°018'18		max. Earth dist.	3732 Aug 25 19:31	4°07'36"58	31.02577 AU
max. Earth dist.	3726 Aug 12 13:16	21°018'01	30.96105 AU	retrograde	3732 Dec 08 17:07	7°07'07"35	
retrograde	3726 Nov 26 00:10	23°049'15		opposition	3733 Feb 24 08:52	5°07'44"12	0°08'22
opposition	3727 Feb 11 19:17	22°025'22	0°-14'-38	min. Earth dist.	3733 Feb 24 14:24	5°07'43"49	29.03221 AU
min. Earth dist.	3727 Feb 11 20:24	22°025'17	28.96487 AU	direct	3733 May 14 09:15	4°07'19"17	
direct	3727 May 01 13:20	21°000'28					
conjunction	3727 Aug 15 04:55	23°031'37	0°-11'-56	conjunction	3733 Aug 28 14:07	6°07'50"43	0°09'40
minimum elong	3727 Aug 15 04:55	23°031'37	0°11'58	minimum elong	3733 Aug 28 14:07	6°07'50"43	0°09'40
behind sun begin	3727 Aug 15 00:28	23°031'13		behind sun begin	3733 Aug 28 08:44	6°07'50"14	
behind sun end	3727 Aug 15 09:22	23°032'01		behind sun end	3733 Aug 28 19:30	6°07'51"11	
max. Earth dist.	3727 Aug 15 02:28	23°031'24	30.96888 AU	max. Earth dist.	3733 Aug 28 06:55	6°07'50"04	31.03854 AU
retrograde	3727 Nov 28 10:36	26°002'29		retrograde	3733 Dec 11 05:46	9°07'20"46	
opposition	3728 Feb 14 05:36	24°038'38	0°-10'-49	opposition	3734 Feb 26 19:10	7°07'57"29	0°12'11
min. Earth dist.	3728 Feb 14 08:18	24°038'27	28.97329 AU	min. Earth dist.	3734 Feb 27 00:55	7°07'57"05	29.04466 AU
direct	3728 May 03 00:11	23°013'41		direct	3734 May 16 20:45	6°07'32"35	
conjunction	3728 Aug 16 18:32	25°044'51	0°-8'-22	conjunction	3734 Aug 31 03:35	9°07'04"03	0°13'14
minimum elong	3728 Aug 16 18:33	25°044'51	0°08'23	minimum elong	3734 Aug 31 03:35	9°07'04"03	0°13'14
behind sun begin	3728 Aug 16 12:46	25°044'20		behind sun begin	3734 Aug 30 23:52	9°07'03"43	
behind sun end	3728 Aug 17 00:19	25°045'22		behind sun end	3734 Aug 31 07:18	9°07'04"23	
max. Earth dist.	3728 Aug 16 15:45	25°044'37	30.97793 AU	max. Earth dist.	3734 Aug 30 20:10	9°07'03"23	31.05039 AU
retrograde	3728 Nov 29 21:38	28°015'32		retrograde	3734 Dec 13 16:52	11°07'33"58	
opposition	3729 Feb 15 15:50	26°051'45	0°-6'-59	opposition	3735 Mar 01 05:38	10°07'10"46	0°15'59
min. Earth dist.	3729 Feb 15 18:07	26°051'36	28.98289 AU	min. Earth dist.	3735 Mar 01 13:09	10°07'10"14	29.05604 AU
direct	3729 May 05 13:03	25°026'46		direct	3735 May 19 09:13	8°07'45"52	
conjunction	3729 Aug 19 08:06	27°057'58	0°-4'-48	conjunction	3735 Sep 02 16:58	11°07'17"21	0°16'46
minimum elong	3729 Aug 19 08:06	27°057'58	0°04'50	minimum elong	3735 Sep 02 16:58	11°07'17"21	0°16'46
behind sun begin	3729 Aug 19 01:40	27°057'24		max. Earth dist.	3735 Sep 02 07:53	11°07'16"31	31.06131 AU
behind sun end	3729 Aug 19 14:32	27°058'32		retrograde	3735 Dec 16 06:00	13°07'47"06	
max. Earth dist.	3729 Aug 19 04:03	27°057'38	30.98818 AU	opposition	3736 Mar 02 15:48	12°07'23"58	0°19'46
retrograde	3729 Oct 21 19:57	0°07'28"30		min. Earth dist.	3736 Mar 02 23:19	12°07'23"26	29.06642 AU
opposition	3730 Jan 13 12:11	30°06'04"48	0°-3'-9	direct	3736 May 20 22:57	10°07'59"03	
min. Earth dist.	3730 Feb 18 05:28	29°004'34	28.99393 AU	conjunction	3736 Sep 04 06:23	13°07'30"33	0°20'17
direct	3730 May 07 22:42	27°039'49		minimum elong	3736 Sep 04 06:22	13°07'30"33	0°20'17
	3730 Aug 16 22:33	0°07'28"30		max. Earth dist.	3736 Sep 03 20:29	13°07'29"38	31.07114 AU
conjunction	3730 Aug 21 21:40	0°07'11"03	0°-1'-11	retrograde	3736 Dec 17 16:21	16°07'00"08	
minimum elong	3730 Aug 21 21:42	0°07'11"03	0°01'11	opposition	3737 Mar 05 02:12	14°07'37"02	0°23'30
behind sun begin	3730 Aug 21 15:06	0°07'10"28		min. Earth dist.	3737 Mar 05 11:35	14°07'36"23	29.07589 AU
behind sun end	3730 Aug 22 04:17	0°07'11"38		direct	3737 May 23 10:36	13°07'12"05	
max. Earth dist.	3730 Aug 21 17:57	0°07'10"45	30.99992 AU	conjunction	3737 Sep 06 19:38	15°07'43"35	0°23'46
retrograde	3730 Dec 04 19:08	2°07'41"27		minimum elong	3737 Sep 06 19:38	15°07'43"35	0°23'46
asc. node	3730 Dec 17 12:42	2°07'38"43		max. Earth dist.	3737 Sep 06 09:01	15°07'42"36	31.08028 AU
opposition	3731 Feb 20 12:22	1°07'17"51	0°00'41	retrograde	3737 Dec 20 03:16	18°07'12"59	
min. Earth dist.	3731 Feb 20 15:55	1°07'17"36	29.00616 AU	opposition	3738 Mar 07 12:22	16°07'49"56	0°27'12
direct	3731 Apr 19 16:20	30°06'04"48		min. Earth dist.	3738 Mar 07 21:41	16°07'49"17	29.08470 AU
	3731 May 10 10:11	29°052'53		direct	3738 May 25 23:52	15°07'24"56	
	3731 May 31 02:31	0°07'28"30		conjunction	3738 Sep 09 08:41	17°07'56"25	0°27'12
conjunction	3731 Aug 24 10:58	2°07'24"11	0°02'31	minimum elong	3738 Sep 09 08:41	17°07'56"25	0°27'13
minimum elong	3731 Aug 24 10:58	2°07'24"11	0°02'30	max. Earth dist.	3738 Sep 08 20:44	17°07'55"19	31.08893 AU
behind sun begin	3731 Aug 24 04:23	2°07'23"36		retrograde	3738 Dec 22 14:24	20°07'25"38	
behind sun end	3731 Aug 24 17:34	2°07'24"46		opposition	3739 Mar 09 22:38	19°07'02"37	0°30'51
max. Earth dist.	3731 Aug 24 05:34	2°07'23"43	31.01266 AU	min. Earth dist.	3739 Mar 10 09:09	19°07'01"52	29.09347 AU
retrograde	3731 Dec 07 06:38	4°07'54"28		direct	3739 May 28 10:14	17°07'37"35	
opposition	3732 Feb 22 22:38	3°07'30"59	0°04'32	conjunction	3739 Sep 11 21:35	20°07'09"01	0°30'36
min. Earth dist.	3732 Feb 23 02:54	3°07'30"41	29.01924 AU	minimum elong	3739 Sep 11 21:34	20°07'09"01	0°30'36
direct	3732 May 11 20:45	2°07'06"03		max. Earth dist.	3739 Sep 11 09:51	20°07'07"56	31.09775 AU
conjunction	3732 Aug 26 00:38	4°07'37"24	0°06'06	retrograde	3739 Dec 24 23:28	22°07'38"04	
				opposition	3740 Mar 11 08:51	21°07'15"04	0°34'28
				min. Earth dist.	3740 Mar 11 19:38	21°07'14"19	29.10241 AU

direct	3740 May 29 22:36	19° \mathring{M} 50'00		direct	3748 Jun 16 20:31	7° \mathring{A} 26'42	
conjunction	3740 Sep 13 10:22	22° \mathring{M} 21'24	0°33'57	conjunction	3748 Oct 01 15:00	9° \mathring{A} 58'07	0°58'31
minimum elong	3740 Sep 13 10:22	22° \mathring{M} 21'24	0°33'57	minimum elong	3748 Oct 01 14:59	9° \mathring{A} 58'07	0°58'31
max. Earth dist.	3740 Sep 12 21:04	22° \mathring{M} 20'10	31.10699 AU	max. Earth dist.	3748 Sep 30 21:41	9° \mathring{A} 56'31	31.19734 AU
retrograde	3740 Dec 26 09:22	24° \mathring{M} 50'17		retrograde	3749 Jan 12 22:26	12° \mathring{A} 26'02	
opposition	3741 Mar 13 18:56	23° \mathring{M} 27'20	0°38'01	opposition	3749 Mar 31 05:29	11° \mathring{A} 03'38	1°03'57
min. Earth dist.	3741 Mar 14 06:08	23° \mathring{M} 26'33	29.11218 AU	min. Earth dist.	3749 Mar 31 21:33	11° \mathring{A} 02'30	29.20181 AU
direct	3741 Jun 01 09:19	22° \mathring{M} 02'13		direct	3749 Jun 19 09:21	9° \mathring{A} 38'38	
				max. Earth dist.	3749 Oct 03 08:10	12° \mathring{A} 08'16	31.20511 AU
conjunction	3741 Sep 15 23:14	24° \mathring{M} 33'37	0°37'15	conjunction	3749 Oct 04 03:15	12° \mathring{A} 10'02	1°01'14
minimum elong	3741 Sep 15 23:14	24° \mathring{M} 33'37	0°37'14	minimum elong	3749 Oct 04 03:14	12° \mathring{A} 10'02	1°01'14
max. Earth dist.	3741 Sep 15 10:39	24° \mathring{M} 32'27	31.11717 AU	retrograde	3750 Jan 15 08:29	14° \mathring{A} 37'49	
retrograde	3741 Dec 28 18:17	27° \mathring{M} 02'20		opposition	3750 Apr 02 15:56	13° \mathring{A} 15'26	1°06'49
opposition	3742 Mar 16 05:15	25° \mathring{M} 39'26	0°41'31	min. Earth dist.	3750 Apr 03 08:30	13° \mathring{A} 14'17	29.20916 AU
min. Earth dist.	3742 Mar 16 17:11	25° \mathring{M} 38'35	29.12290 AU	direct	3750 Jun 21 20:07	11° \mathring{A} 50'26	
direct	3742 Jun 03 20:56	24° \mathring{M} 14'19					
conjunction	3742 Sep 18 11:41	26° \mathring{M} 45'41	0°40'29	conjunction	3750 Oct 06 15:20	14° \mathring{A} 21'47	1°03'52
minimum elong	3742 Sep 18 11:41	26° \mathring{M} 45'41	0°40'29	minimum elong	3750 Oct 06 15:20	14° \mathring{A} 21'47	1°03'52
max. Earth dist.	3742 Sep 17 21:42	26° \mathring{M} 44'24	31.12852 AU	max. Earth dist.	3750 Oct 05 20:51	14° \mathring{A} 20'05	31.21194 AU
retrograde	3742 Dec 31 05:57	29° \mathring{M} 14'17		retrograde	3751 Jan 17 16:54	16° \mathring{A} 49'27	
opposition	3743 Mar 18 15:26	27° \mathring{M} 51'27	0°44'57	opposition	3751 Apr 05 02:24	15° \mathring{A} 27'06	1°09'34
min. Earth dist.	3743 Mar 19 02:56	27° \mathring{M} 50'39	29.13484 AU	min. Earth dist.	3751 Apr 05 20:01	15° \mathring{A} 25'52	29.21562 AU
direct	3743 Jun 06 07:38	26° \mathring{M} 26'21		direct	3751 Jun 24 07:40	14° \mathring{A} 02'04	
max. Earth dist.	3743 Sep 20 10:48	28° \mathring{M} 56'29	31.14083 AU	max. Earth dist.	3751 Oct 08 07:15	16° \mathring{A} 31'31	31.21820 AU
conjunction	3743 Sep 21 00:22	28° \mathring{M} 57'44	0°43'40	conjunction	3751 Oct 09 03:15	16° \mathring{A} 33'22	1°06'24
minimum elong	3743 Sep 21 00:22	28° \mathring{M} 57'44	0°43'40	minimum elong	3751 Oct 09 03:14	16° \mathring{A} 33'22	1°06'24
	3743 Oct 19 20:03	0° \mathring{A}		retrograde	3752 Jan 20 03:47	19° \mathring{A} 00'55	
retrograde	3744 Jan 02 15:54	1° \mathring{A} 26'13		opposition	3752 Apr 06 12:35	17° \mathring{A} 38'34	1°12'14
opposition	3744 Mar 20 01:38	0° \mathring{A} 03'27	0°48'19	min. Earth dist.	3752 Apr 07 05:50	17° \mathring{A} 37'22	29.22185 AU
min. Earth dist.	3744 Mar 20 14:34	0° \mathring{A} 02'33	29.14749 AU	direct	3752 Jun 25 18:17	16° \mathring{A} 13'30	
	3744 Mar 22 03:00	30° \mathring{R} \mathring{M}					
direct	3744 Jun 07 19:44	28° \mathring{M} 38'23		conjunction	3752 Oct 10 15:13	18° \mathring{A} 44'46	1°08'50
	3744 Aug 20 22:25	0° \mathring{A}		minimum elong	3752 Oct 10 15:13	18° \mathring{A} 44'46	1°08'50
				max. Earth dist.	3752 Oct 09 19:44	18° \mathring{A} 42'58	31.22435 AU
conjunction	3744 Sep 22 12:58	1° \mathring{A} 09'47	0°46'47	retrograde	3753 Jan 21 12:53	21° \mathring{A} 12'12	
minimum elong	3744 Sep 22 12:58	1° \mathring{A} 09'47	0°46'48	opposition	3753 Apr 08 23:05	19° \mathring{A} 49'52	1°14'46
max. Earth dist.	3744 Sep 21 22:10	1° \mathring{A} 08'25	31.15368 AU	min. Earth dist.	3753 Apr 09 17:32	19° \mathring{A} 48'35	29.22823 AU
retrograde	3745 Jan 04 04:16	3° \mathring{A} 38'10		direct	3753 Jun 28 06:41	18° \mathring{A} 24'47	
opposition	3745 Mar 22 11:51	2° \mathring{A} 15'30	0°51'36	max. Earth dist.	3753 Oct 12 06:34	20° \mathring{A} 54'08	31.23104 AU
min. Earth dist.	3745 Mar 23 00:28	2° \mathring{A} 14'37	29.16027 AU				
direct	3745 Jun 10 08:56	0° \mathring{A} 50'27		conjunction	3753 Oct 13 02:47	20° \mathring{A} 56'00	1°11'10
max. Earth dist.	3745 Sep 24 10:20	3° \mathring{A} 20'29	31.16612 AU	minimum elong	3753 Oct 13 02:47	20° \mathring{A} 56'00	1°11'10
				retrograde	3754 Jan 24 00:12	23° \mathring{A} 23'20	
conjunction	3745 Sep 25 01:33	3° \mathring{A} 21'53	0°49'50	opposition	3754 Apr 11 09:27	22° \mathring{A} 01'00	1°17'13
minimum elong	3745 Sep 25 01:33	3° \mathring{A} 21'53	0°49'51	min. Earth dist.	3754 Apr 12 02:59	21° \mathring{A} 59'47	29.23535 AU
retrograde	3746 Jan 06 14:42	5° \mathring{A} 50'10		direct	3754 Jun 30 19:38	20° \mathring{A} 35'56	
opposition	3746 Mar 24 22:17	4° \mathring{A} 27'34	0°54'49				
min. Earth dist.	3746 Mar 25 12:35	4° \mathring{A} 26'34	29.17247 AU	conjunction	3754 Oct 15 14:24	23° \mathring{A} 07'07	1°13'24
direct	3746 Jun 12 20:14	3° \mathring{A} 02'34		minimum elong	3754 Oct 15 14:24	23° \mathring{A} 07'07	1°13'24
				max. Earth dist.	3754 Oct 14 18:24	23° \mathring{A} 05'16	31.23859 AU
conjunction	3746 Sep 27 14:06	5° \mathring{A} 34'00	0°52'49	retrograde	3755 Jan 26 10:09	25° \mathring{A} 34'22	
minimum elong	3746 Sep 27 14:06	5° \mathring{A} 34'00	0°52'49	opposition	3755 Apr 13 19:56	24° \mathring{A} 12'05	1°19'32
max. Earth dist.	3746 Sep 26 22:15	5° \mathring{A} 32'32	31.17783 AU	min. Earth dist.	3755 Apr 14 14:28	24° \mathring{A} 10'48	29.24358 AU
retrograde	3747 Jan 09 02:02	8° \mathring{A} 02'09		direct	3755 Jul 03 06:26	22° \mathring{A} 47'02	
opposition	3747 Mar 27 08:38	6° \mathring{A} 39'39	0°57'57	max. Earth dist.	3755 Oct 17 05:59	25° \mathring{A} 16'22	31.24734 AU
min. Earth dist.	3747 Mar 27 22:52	6° \mathring{A} 38'39	29.18359 AU				
direct	3747 Jun 15 09:30	5° \mathring{A} 14'40		conjunction	3755 Oct 18 01:52	25° \mathring{A} 18'12	1°15'31
max. Earth dist.	3747 Sep 29 09:16	7° \mathring{A} 44'30	31.18824 AU	minimum elong	3755 Oct 18 01:51	25° \mathring{A} 18'12	1°15'31
				retrograde	3756 Jan 28 21:12	27° \mathring{A} 45'22	
conjunction	3747 Sep 30 02:29	7° \mathring{A} 46'06	0°55'42	opposition	3756 Apr 15 06:19	26° \mathring{A} 23'09	1°21'45
minimum elong	3747 Sep 30 02:29	7° \mathring{A} 46'06	0°55'42	min. Earth dist.	3756 Apr 16 00:12	26° \mathring{A} 21'55	29.25262 AU
retrograde	3748 Jan 11 13:23	10° \mathring{A} 14'08		direct	3756 Jul 04 19:54	24° \mathring{A} 58'08	
opposition	3748 Mar 28 19:07	8° \mathring{A} 51'41	1°01'00				
min. Earth dist.	3748 Mar 29 10:37	8° \mathring{A} 50'36	29.19344 AU	conjunction	3756 Oct 19 13:18	27° \mathring{A} 29'18	1°17'32

minimum elong	3756 Oct 19 13:18	27° Δ 29'18	1°17'32	max. Earth dist.	3764 Nov 05 08:22	14° ℳ 55'08	31.30524 AU
max. Earth dist.	3756 Oct 18 16:44	27° Δ 27'24	31.25663 AU				
retrograde	3757 Jan 30 08:56	29° Δ 56'25		conjunction	3764 Nov 06 06:35	14° ℳ 57'12	1°29'23
opposition	3757 Apr 17 16:49	28° Δ 34'16	1°23'50	minimum elong	3764 Nov 06 06:35	14° ℳ 57'12	1°29'23
min. Earth dist.	3757 Apr 18 11:22	28° Δ 32'59	29.26217 AU		3764 Nov 07 12:44	15° ℳ	
direct	3757 Jul 07 07:18	27° Δ 09'18		retrograde	3765 Feb 16 14:20	17° ℳ 23'45	
max. Earth dist.	3757 Oct 21 04:47	29° Δ 38'37	31.26613 AU	opposition	3765 May 05 06:42	16° ℳ 01'44	1°35'59
				min. Earth dist.	3765 May 06 03:13	16° ℳ 00'19	29.30753 AU
conjunction	3757 Oct 22 00:46	29° Δ 40'28	1°19'26		3765 Jun 16 04:39	15° ℳ	
minimum elong	3757 Oct 22 00:46	29° Δ 40'28	1°19'26	direct	3765 Jul 25 05:55	14° ℳ 36'48	
	3757 Oct 30 19:27	0° ℳ			3765 Sep 01 11:55	15° ℳ	
retrograde	3758 Feb 01 17:44	2° ℳ 07'31					
opposition	3758 Apr 20 03:28	0° ℳ 45'26	1°25'48	conjunction	3765 Nov 08 17:12	17° ℳ 07'31	1°30'19
min. Earth dist.	3758 Apr 20 22:12	0° ℳ 44'08	29.27144 AU	minimum elong	3765 Nov 08 17:12	17° ℳ 07'31	1°30'19
	3758 May 19 01:16	30° ℳ 0		max. Earth dist.	3765 Nov 07 18:34	17° ℳ 05'25	31.30807 AU
direct	3758 Jul 09 20:04	29° Δ 20'32		retrograde	3766 Feb 19 01:33	19° ℳ 34'01	
	3758 Aug 29 01:47	0° ℳ		opposition	3766 May 07 17:36	18° ℳ 11'58	1°36'54
				min. Earth dist.	3766 May 08 14:15	18° ℳ 10'33	29.31082 AU
conjunction	3758 Oct 24 11:55	1° ℳ 51'40	1°21'13	direct	3766 Jul 27 17:29	16° ℳ 47'03	
minimum elong	3758 Oct 24 11:55	1° ℳ 51'40	1°21'13	max. Earth dist.	3766 Nov 10 06:13	19° ℳ 15'42	31.31173 AU
max. Earth dist.	3758 Oct 23 14:38	1° ℳ 49'41	31.27508 AU				
retrograde	3759 Feb 04 03:59	4° ℳ 18'40		conjunction	3766 Nov 11 03:39	19° ℳ 17'42	1°31'07
opposition	3759 Apr 22 14:06	2° ℳ 56'38	1°27'39	minimum elong	3766 Nov 11 03:39	19° ℳ 17'42	1°31'06
min. Earth dist.	3759 Apr 23 09:02	2° ℳ 55'20	29.28007 AU	retrograde	3767 Feb 21 10:05	21° ℳ 44'09	
direct	3759 Jul 12 06:43	1° ℳ 31'46		opposition	3767 May 10 04:30	20° ℳ 22'07	1°37'41
				min. Earth dist.	3767 May 11 00:47	20° ℳ 20'44	29.31488 AU
conjunction	3759 Oct 26 23:22	4° ℳ 02'53	1°22'53	direct	3767 Jul 30 06:23	18° ℳ 57'14	
minimum elong	3759 Oct 26 23:22	4° ℳ 02'53	1°22'53				
max. Earth dist.	3759 Oct 26 02:46	4° ℳ 00'58	31.28306 AU	conjunction	3767 Nov 13 14:04	21° ℳ 27'50	1°31'47
retrograde	3760 Feb 06 12:30	6° ℳ 29'48		minimum elong	3767 Nov 13 14:04	21° ℳ 27'50	1°31'47
opposition	3760 Apr 24 00:47	5° ℳ 07'49	1°29'22	max. Earth dist.	3767 Nov 12 15:53	21° ℳ 25'46	31.31635 AU
min. Earth dist.	3760 Apr 24 20:47	5° ℳ 06'26	29.28742 AU	retrograde	3768 Feb 23 20:24	23° ℳ 54'16	
direct	3760 Jul 13 18:09	3° ℳ 42'58		opposition	3768 May 11 15:15	22° ℳ 32'17	1°38'20
				min. Earth dist.	3768 May 12 10:59	22° ℳ 30'55	29.32006 AU
conjunction	3760 Oct 28 10:38	6° ℳ 14'02	1°24'26	direct	3768 Jul 31 17:07	21° ℳ 07'26	
minimum elong	3760 Oct 28 10:37	6° ℳ 14'02	1°24'26	max. Earth dist.	3768 Nov 14 03:51	23° ℳ 36'05	31.32191 AU
max. Earth dist.	3760 Oct 27 12:33	6° ℳ 11'59	31.28977 AU				
retrograde	3761 Feb 07 23:14	8° ℳ 40'53		conjunction	3768 Nov 15 00:36	23° ℳ 38'01	1°32'19
opposition	3761 Apr 26 11:32	7° ℳ 18'55	1°30'57	minimum elong	3768 Nov 15 00:36	23° ℳ 38'01	1°32'18
min. Earth dist.	3761 Apr 27 07:03	7° ℳ 17'35	29.29349 AU	retrograde	3769 Feb 25 05:08	26° ℳ 04'27	
direct	3761 Jul 16 05:06	5° ℳ 54'04		opposition	3769 May 14 02:20	24° ℳ 42'31	1°38'50
				min. Earth dist.	3769 May 14 22:30	24° ℳ 41'08	29.32585 AU
conjunction	3761 Oct 30 21:49	8° ℳ 25'05	1°25'51	direct	3769 Aug 03 04:28	23° ℳ 17'45	
minimum elong	3761 Oct 30 21:49	8° ℳ 25'05	1°25'52				
max. Earth dist.	3761 Oct 30 00:11	8° ℳ 23'04	31.29507 AU	conjunction	3769 Nov 17 10:46	25° ℳ 48'18	1°32'43
retrograde	3762 Feb 10 07:36	10° ℳ 51'52		minimum elong	3769 Nov 17 10:46	25° ℳ 48'18	1°32'43
opposition	3762 Apr 28 22:28	9° ℳ 29'54	1°32'25	max. Earth dist.	3769 Nov 16 13:21	25° ℳ 46'19	31.32793 AU
min. Earth dist.	3762 Apr 29 19:17	9° ℳ 28'28	29.29821 AU	retrograde	3770 Feb 27 15:57	28° ℳ 14'47	
direct	3762 Jul 18 16:53	8° ℳ 05'03		opposition	3770 May 16 13:21	26° ℳ 52'54	1°39'11
max. Earth dist.	3762 Nov 01 10:21	10° ℳ 33'53	31.29926 AU	min. Earth dist.	3770 May 17 08:27	26° ℳ 51'36	29.33189 AU
				direct	3770 Aug 05 15:00	25° ℳ 28'12	
conjunction	3762 Nov 02 08:50	10° ℳ 35'59	1°27'10				
minimum elong	3762 Nov 02 08:50	10° ℳ 35'59	1°27'10	conjunction	3770 Nov 19 21:09	27° ℳ 58'45	1°32'59
retrograde	3763 Feb 12 18:13	13° ℳ 02'41		minimum elong	3770 Nov 19 21:09	27° ℳ 58'45	1°32'59
opposition	3763 May 01 09:06	11° ℳ 40'42	1°33'44	max. Earth dist.	3770 Nov 19 00:38	27° ℳ 56'50	31.33375 AU
min. Earth dist.	3763 May 02 05:14	11° ℳ 39'19	29.30188 AU		3771 Jan 22 08:30	0° ℳ	
direct	3763 Jul 21 05:00	10° ℳ 15'49		retrograde	3771 Mar 02 00:42	0° ℳ 25'15	
					3771 Apr 10 23:14	30° ℳ	
conjunction	3763 Nov 04 19:48	12° ℳ 46'41	1°28'20	opposition	3771 May 19 00:28	29° ℳ 03'25	1°39'24
minimum elong	3763 Nov 04 19:48	12° ℳ 46'41	1°28'21	min. Earth dist.	3771 May 19 20:36	29° ℳ 02'03	29.33748 AU
max. Earth dist.	3763 Nov 03 21:18	12° ℳ 44'36	31.30245 AU	direct	3771 Aug 08 01:39	27° ℳ 38'48	
	3764 Jan 18 06:00	15° ℳ			3771 Nov 18 03:38	0° ℳ	
retrograde	3764 Feb 15 03:59	15° ℳ 13'20		max. Earth dist.	3771 Nov 21 10:26	0° ℳ 07'21	31.33897 AU
	3764 Mar 14 14:51	15° ℳ					
opposition	3764 May 02 19:57	13° ℳ 51'19	1°34'56	conjunction	3771 Nov 22 07:26	0° ℳ 09'19	1°33'07
min. Earth dist.	3764 May 03 17:13	13° ℳ 49'52	29.30483 AU	minimum elong	3771 Nov 22 07:26	0° ℳ 09'19	1°33'07
direct	3764 Jul 22 15:55	12° ℳ 26'25		retrograde	3772 Mar 03 11:36	2° ℳ 35'51	

opposition	3772 May 20 11:40	1°♏14'03	1°39'28	min. Earth dist.	3780 Jun 08 01:38	18°♏36'21	29.34216 AU
min. Earth dist.	3772 May 21 06:51	1°♏12'45	29.34208 AU	direct	3780 Aug 27 12:20	17°♏13'09	
	3772 Jul 14 14:14	30°♏		max. Earth dist.	3780 Dec 10 06:46	19°♏41'18	31.34138 AU
direct	3772 Aug 09 12:40	29°♏49'29					
	3772 Sep 04 04:12	0°♏		conjunction	3780 Dec 11 01:06	19°♏43'01	1°28'25
				minimum elong	3780 Dec 11 01:06	19°♏43'01	1°28'25
conjunction	3772 Nov 23 17:44	2°♏19'59	1°33'07	retrograde	3781 Mar 23 06:01	22°♏09'38	
minimum elong	3772 Nov 23 17:44	2°♏19'59	1°33'06	opposition	3781 Jun 09 18:56	20°♏47'41	1°33'51
max. Earth dist.	3772 Nov 22 20:48	2°♏18'02	31.34288 AU	min. Earth dist.	3781 Jun 10 11:35	20°♏46'33	29.34245 AU
retrograde	3773 Mar 05 21:59	4°♏46'32		direct	3781 Aug 29 23:10	19°♏23'16	
opposition	3773 May 22 23:05	3°♏24'46	1°39'24				
min. Earth dist.	3773 May 23 19:14	3°♏23'24	29.34542 AU	conjunction	3781 Dec 13 10:44	21°♏53'06	1°27'15
direct	3773 Aug 11 22:47	2°♏00'15		minimum elong	3781 Dec 13 10:44	21°♏53'06	1°27'16
max. Earth dist.	3773 Nov 25 07:25	4°♏28'46	31.34554 AU	max. Earth dist.	3781 Dec 12 16:58	21°♏51'26	31.34192 AU
				retrograde	3782 Mar 25 16:36	24°♏19'48	
conjunction	3773 Nov 26 04:00	4°♏30'41	1°32'59	opposition	3782 Jun 12 06:41	22°♏57'50	1°32'32
minimum elong	3773 Nov 26 04:00	4°♏30'41	1°32'59	min. Earth dist.	3782 Jun 12 23:44	22°♏56'41	29.34317 AU
retrograde	3774 Mar 08 09:01	6°♏57'15		direct	3782 Sep 01 08:52	21°♏33'30	
opposition	3774 May 25 10:28	5°♏35'29	1°39'11				
min. Earth dist.	3774 May 26 05:56	5°♏34'10	29.34727 AU	conjunction	3782 Dec 15 20:18	24°♏03'17	1°25'58
direct	3774 Aug 14 12:36	4°♏11'00		minimum elong	3782 Dec 15 20:18	24°♏03'17	1°25'57
				max. Earth dist.	3782 Dec 15 03:34	24°♏01'43	31.34266 AU
conjunction	3774 Nov 28 14:05	6°♏41'23	1°32'43	retrograde	3783 Mar 28 03:24	26°♏30'03	
minimum elong	3774 Nov 28 14:05	6°♏41'23	1°32'43	opposition	3783 Jun 14 18:24	25°♏08'07	1°31'05
max. Earth dist.	3774 Nov 27 16:48	6°♏39'24	31.34666 AU	min. Earth dist.	3783 Jun 15 10:25	25°♏07'01	29.34357 AU
retrograde	3775 Mar 10 21:04	9°♏07'57		direct	3783 Sep 03 21:31	23°♏43'50	
opposition	3775 May 27 21:54	7°♏46'10	1°38'50				
min. Earth dist.	3775 May 28 17:42	7°♏44'49	29.34776 AU	conjunction	3783 Dec 18 05:52	26°♏13'35	1°24'33
direct	3775 Aug 17 00:14	6°♏21'41		minimum elong	3783 Dec 18 05:52	26°♏13'35	1°24'33
max. Earth dist.	3775 Nov 30 03:56	8°♏50'06	31.34648 AU	max. Earth dist.	3783 Dec 17 12:44	26°♏11'59	31.34276 AU
				retrograde	3784 Mar 29 15:42	28°♏40'27	
conjunction	3775 Dec 01 00:17	8°♏52'00	1°32'19	opposition	3784 Jun 16 06:13	27°♏18'30	1°29'30
minimum elong	3775 Dec 01 00:17	8°♏52'00	1°32'20	min. Earth dist.	3784 Jun 16 22:12	27°♏17'25	29.34333 AU
retrograde	3776 Mar 12 05:40	11°♏18'33		direct	3784 Sep 05 07:55	25°♏54'17	
opposition	3776 May 29 09:16	9°♏56'44	1°38'21				
min. Earth dist.	3776 May 30 05:02	9°♏55'24	29.34687 AU	conjunction	3784 Dec 19 15:37	28°♏24'01	1°23'00
direct	3776 Aug 18 13:14	8°♏32'16		minimum elong	3784 Dec 19 15:37	28°♏24'01	1°23'00
				max. Earth dist.	3784 Dec 18 23:46	28°♏22'32	31.34200 AU
conjunction	3776 Dec 02 10:13	11°♏02'29	1°31'48		3785 Feb 03 23:26	0°♏	
minimum elong	3776 Dec 02 10:14	11°♏02'29	1°31'48	retrograde	3785 Apr 01 01:26	0°♏50'58	
max. Earth dist.	3776 Dec 01 13:04	11°♏00'30	31.34524 AU		3785 May 30 05:04	30°♏	
retrograde	3777 Mar 14 16:35	13°♏29'01		opposition	3785 Jun 18 18:17	29°♏29'01	1°27'48
opposition	3777 May 31 20:45	12°♏07'10	1°37'43	min. Earth dist.	3785 Jun 19 10:00	29°♏27'57	29.34186 AU
min. Earth dist.	3777 Jun 01 15:55	12°♏05'51	29.34538 AU	direct	3785 Sep 07 20:26	28°♏04'52	
direct	3777 Aug 21 01:22	10°♏42'40			3785 Dec 06 13:49	0°♏	
				max. Earth dist.	3785 Dec 21 08:28	0°♏32'59	31.33992 AU
conjunction	3777 Dec 04 20:03	13°♏12'47	1°31'09				
minimum elong	3777 Dec 04 20:03	13°♏12'47	1°31'09	conjunction	3785 Dec 22 01:03	0°♏34'33	1°21'21
max. Earth dist.	3777 Dec 04 00:28	13°♏10'58	31.34355 AU	minimum elong	3785 Dec 22 01:03	0°♏34'33	1°21'21
retrograde	3778 Mar 17 01:26	15°♏39'20		retrograde	3786 Apr 03 13:28	3°♏01'34	
opposition	3778 Jun 03 08:22	14°♏17'25	1°36'58	opposition	3786 Jun 21 06:18	1°♏39'37	1°25'58
min. Earth dist.	3778 Jun 04 03:47	14°♏16'06	29.34369 AU	min. Earth dist.	3786 Jun 21 21:22	1°♏38'36	29.33908 AU
direct	3778 Aug 23 14:11	12°♏52'55		direct	3786 Sep 10 08:18	0°♏15'30	
max. Earth dist.	3778 Dec 06 09:50	15°♏21'05	31.34211 AU				
				conjunction	3786 Dec 24 10:49	2°♏45'08	1°19'34
conjunction	3778 Dec 07 05:44	15°♏22'57	1°30'22	minimum elong	3786 Dec 24 10:49	2°♏45'08	1°19'34
minimum elong	3778 Dec 07 05:44	15°♏22'57	1°30'22	max. Earth dist.	3786 Dec 23 19:31	2°♏43'42	31.33632 AU
retrograde	3779 Mar 19 11:31	17°♏49'29		retrograde	3787 Apr 05 23:19	5°♏12'14	
opposition	3779 Jun 05 19:41	16°♏27'32	1°36'04	opposition	3787 Jun 23 18:19	3°♏50'15	1°24'01
min. Earth dist.	3779 Jun 06 13:35	16°♏26'19	29.34256 AU	min. Earth dist.	3787 Jun 24 09:55	3°♏49'12	29.33463 AU
direct	3779 Aug 26 01:34	15°♏03'03		direct	3787 Sep 12 21:02	2°♏26'10	
conjunction	3779 Dec 09 15:32	17°♏33'00	1°29'27	conjunction	3787 Dec 26 20:22	4°♏55'45	1°17'41
minimum elong	3779 Dec 09 15:32	17°♏33'00	1°29'28	minimum elong	3787 Dec 26 20:22	4°♏55'45	1°17'42
max. Earth dist.	3779 Dec 08 20:52	17°♏31'15	31.34130 AU	max. Earth dist.	3787 Dec 26 04:31	4°♏54'15	31.33122 AU
retrograde	3780 Mar 20 19:43	19°♏59'34		retrograde	3788 Apr 07 10:06	7°♏22'55	
opposition	3780 Jun 07 07:22	18°♏37'36	1°35'01	opposition	3788 Jun 25 06:23	6°♏00'53	1°21'57

min. Earth dist.	3788 Jun 25 20:40	5° $\overline{3}$ 59'55	29.32875 AU	conjunction	3797 Jan 14 07:52	24° $\overline{3}$ 30'14	0°56'10
direct	3788 Sep 14 08:52	4° $\overline{3}$ 36'48		minimum elong	3797 Jan 14 07:52	24° $\overline{3}$ 30'14	0°56'09
				max. Earth dist.	3797 Jan 13 23:03	24° $\overline{3}$ 29'25	31.27804 AU
conjunction	3788 Dec 28 05:51	7° $\overline{3}$ 06'19	1°15'42	retrograde	3797 Apr 27 11:42	26° $\overline{3}$ 58'22	
minimum elong	3788 Dec 28 05:51	7° $\overline{3}$ 06'19	1°15'42	opposition	3797 Jul 15 20:47	25° $\overline{3}$ 35'56	0°58'29
max. Earth dist.	3788 Dec 27 14:57	7° $\overline{3}$ 04'55	31.32469 AU	min. Earth dist.	3797 Jul 16 04:16	25° $\overline{3}$ 35'26	29.27561 AU
retrograde	3789 Apr 09 18:42	9° $\overline{3}$ 33'33		direct	3797 Oct 04 14:42	24° $\overline{3}$ 12'10	
opposition	3789 Jun 27 18:40	8° $\overline{3}$ 11'28	1°19'46				
min. Earth dist.	3789 Jun 28 09:28	8° $\overline{3}$ 10'28	29.32173 AU	conjunction	3798 Jan 16 17:18	26° $\overline{3}$ 41'10	0°53'18
direct	3789 Sep 16 20:13	6° $\overline{3}$ 47'23		minimum elong	3798 Jan 16 17:18	26° $\overline{3}$ 41'10	0°53'19
				max. Earth dist.	3798 Jan 16 09:24	26° $\overline{3}$ 40'26	31.27230 AU
conjunction	3789 Dec 30 15:13	9° $\overline{3}$ 16'48	1°13'36	retrograde	3798 Apr 29 21:25	29° $\overline{3}$ 09'26	
minimum elong	3789 Dec 30 15:13	9° $\overline{3}$ 16'48	1°13'37	opposition	3798 Jul 18 09:22	27° $\overline{3}$ 46'58	0°55'24
max. Earth dist.	3789 Dec 30 00:47	9° $\overline{3}$ 15'26	31.31747 AU	min. Earth dist.	3798 Jul 18 17:22	27° $\overline{3}$ 46'25	29.26939 AU
retrograde	3790 Apr 12 04:54	11° $\overline{3}$ 44'06		direct	3798 Oct 07 02:21	26° $\overline{3}$ 23'14	
opposition	3790 Jun 30 06:41	10° $\overline{3}$ 21'56	1°17'28				
min. Earth dist.	3790 Jun 30 19:51	10° $\overline{3}$ 21'03	29.31428 AU	conjunction	3799 Jan 19 02:43	28° $\overline{3}$ 52'11	0°50'23
direct	3790 Sep 19 07:20	8° $\overline{3}$ 57'51		minimum elong	3799 Jan 19 02:43	28° $\overline{3}$ 52'11	0°50'22
max. Earth dist.	3791 Jan 01 10:37	11° $\overline{3}$ 25'53	31.31003 AU	max. Earth dist.	3799 Jan 18 19:16	28° $\overline{3}$ 51'29	31.26556 AU
					3799 Feb 19 04:07	0° \approx	
conjunction	3791 Jan 02 00:28	11° $\overline{3}$ 27'11	1°11'24	retrograde	3799 May 02 08:32	1° \approx 20'34	
minimum elong	3791 Jan 02 00:29	11° $\overline{3}$ 27'11	1°11'24		3799 Jul 19 17:01	30° \overline{R} $\overline{3}$	
retrograde	3791 Apr 14 15:20	13° $\overline{3}$ 54'35		opposition	3799 Jul 20 21:55	29° $\overline{3}$ 58'03	0°52'13
opposition	3791 Jul 02 18:54	12° $\overline{3}$ 32'20	1°15'04	min. Earth dist.	3799 Jul 21 04:24	29° $\overline{3}$ 57'36	29.26186 AU
min. Earth dist.	3791 Jul 03 08:10	12° $\overline{3}$ 31'26	29.30708 AU	direct	3799 Oct 09 14:25	28° $\overline{3}$ 34'20	
direct	3791 Sep 21 17:27	11° $\overline{3}$ 08'16			3799 Dec 23 16:23	0° \approx	
conjunction	3792 Jan 04 09:45	13° $\overline{3}$ 37'30	1°09'06	conjunction	3800 Jan 21 12:07	1° \approx 03'14	0°47'22
minimum elong	3792 Jan 04 09:46	13° $\overline{3}$ 37'30	1°09'06	minimum elong	3800 Jan 21 12:07	1° \approx 03'14	0°47'23
max. Earth dist.	3792 Jan 03 21:24	13° $\overline{3}$ 36'21	31.30316 AU	max. Earth dist.	3800 Jan 21 04:48	1° \approx 02'32	31.25730 AU
retrograde	3792 Apr 16 01:49	16° $\overline{3}$ 05'00		retrograde	3800 May 04 19:12	3° \approx 31'44	
opposition	3792 Jul 04 07:00	14° $\overline{3}$ 42'42	1°12'33	opposition	3800 Jul 23 10:40	2° \approx 09'09	0°48'59
min. Earth dist.	3792 Jul 04 18:42	14° $\overline{3}$ 41'55	29.30050 AU	min. Earth dist.	3800 Jul 23 17:31	2° \approx 08'41	29.25297 AU
direct	3792 Sep 23 05:42	13° $\overline{3}$ 18'39		direct	3800 Oct 12 00:48	0° \approx 45'27	
conjunction	3793 Jan 05 18:57	15° $\overline{3}$ 47'50	1°06'42	conjunction	3801 Jan 23 21:37	3° \approx 14'15	0°44'18
minimum elong	3793 Jan 05 18:57	15° $\overline{3}$ 47'50	1°06'42	minimum elong	3801 Jan 23 21:38	3° \approx 14'16	0°44'18
max. Earth dist.	3793 Jan 05 06:39	15° $\overline{3}$ 46'41	31.29713 AU	max. Earth dist.	3801 Jan 23 15:36	3° \approx 13'41	31.24787 AU
retrograde	3793 Apr 18 14:20	18° $\overline{3}$ 15'27		retrograde	3801 May 07 05:31	5° \approx 42'53	
opposition	3793 Jul 06 19:18	16° $\overline{3}$ 53'06	1°09'56	opposition	3801 Jul 25 23:21	4° \approx 20'12	0°45'40
min. Earth dist.	3793 Jul 07 06:15	16° $\overline{3}$ 52'22	29.29499 AU	min. Earth dist.	3801 Jul 26 04:57	4° \approx 19'49	29.24288 AU
direct	3793 Sep 25 15:03	15° $\overline{3}$ 29'06		direct	3801 Oct 14 12:57	2° \approx 56'29	
conjunction	3794 Jan 08 04:09	17° $\overline{3}$ 58'15	1°04'12	conjunction	3802 Jan 26 06:52	5° \approx 25'13	0°41'11
minimum elong	3794 Jan 08 04:09	17° $\overline{3}$ 58'15	1°04'13	minimum elong	3802 Jan 26 06:52	5° \approx 25'13	0°41'11
max. Earth dist.	3794 Jan 07 17:48	17° $\overline{3}$ 57'16	31.29203 AU	max. Earth dist.	3802 Jan 26 00:36	5° \approx 24'38	31.23743 AU
retrograde	3794 Apr 21 00:19	20° $\overline{3}$ 25'58		retrograde	3802 May 09 17:50	7° \approx 53'57	
opposition	3794 Jul 09 07:36	19° $\overline{3}$ 03'37	1°07'13	opposition	3802 Jul 28 12:02	6° \approx 31'10	0°42'18
min. Earth dist.	3794 Jul 09 17:46	19° $\overline{3}$ 02'55	29.29007 AU	min. Earth dist.	3802 Jul 28 17:10	6° \approx 30'49	29.23223 AU
direct	3794 Sep 28 03:05	17° $\overline{3}$ 39'39		direct	3802 Oct 16 22:27	5° \approx 07'26	
conjunction	3795 Jan 10 13:20	20° $\overline{3}$ 08'46	1°01'37	conjunction	3803 Jan 28 16:16	7° \approx 36'06	0°38'00
minimum elong	3795 Jan 10 13:20	20° $\overline{3}$ 08'46	1°01'37	minimum elong	3803 Jan 28 16:16	7° \approx 36'06	0°37'59
max. Earth dist.	3795 Jan 10 02:45	20° $\overline{3}$ 07'46	31.28744 AU	max. Earth dist.	3803 Jan 28 11:50	7° \approx 35'41	31.22667 AU
retrograde	3795 Apr 23 13:21	22° $\overline{3}$ 36'37		retrograde	3803 May 12 04:02	10° \approx 04'56	
opposition	3795 Jul 11 19:45	21° $\overline{3}$ 14'14	1°04'24	opposition	3803 Jul 31 00:34	8° \approx 42'03	0°38'51
min. Earth dist.	3795 Jul 12 04:47	21° $\overline{3}$ 13'38	29.28558 AU	min. Earth dist.	3803 Jul 31 04:54	8° \approx 41'46	29.22147 AU
direct	3795 Sep 30 14:42	19° $\overline{3}$ 50'21		direct	3803 Oct 19 10:49	7° \approx 18'20	
conjunction	3796 Jan 12 22:43	22° $\overline{3}$ 19'26	0°58'56	conjunction	3804 Jan 31 01:30	9° \approx 46'55	0°34'45
minimum elong	3796 Jan 12 22:43	22° $\overline{3}$ 19'26	0°58'56	minimum elong	3804 Jan 31 01:30	9° \approx 46'55	0°34'45
max. Earth dist.	3796 Jan 12 13:52	22° $\overline{3}$ 18'36	31.28290 AU	max. Earth dist.	3804 Jan 30 21:04	9° \approx 46'30	31.21629 AU
retrograde	3796 Apr 25 00:16	24° $\overline{3}$ 47'26		retrograde	3804 May 13 17:24	12° \approx 15'53	
opposition	3796 Jul 13 08:17	23° $\overline{3}$ 25'01	1°01'29	opposition	3804 Aug 01 13:17	10° \approx 52'55	0°35'22
min. Earth dist.	3796 Jul 13 17:24	23° $\overline{3}$ 24'24	29.28085 AU	min. Earth dist.	3804 Aug 01 16:07	10° \approx 52'44	29.21153 AU
direct	3796 Oct 02 03:07	22° $\overline{3}$ 01'12		direct	3804 Oct 20 21:58	9° \approx 29'12	

conjunction	3805 Feb 01 10:46	11° \approx 57'45	0°31'28	max. Earth dist.	3812 Feb 17 08:50	27° \approx 18'56	31.15237 AU
minimum elong	3805 Feb 01 10:46	11° \approx 57'45	0°31'27	retrograde	3812 May 31 13:57	29° \approx 49'03	
max. Earth dist.	3805 Feb 01 08:21	11° \approx 57'32	31.20676 AU	opposition	3812 Aug 19 20:31	28° \approx 25'47	0°05'52
retrograde	3805 May 16 04:36	14° \approx 26'52		min. Earth dist.	3812 Aug 19 17:14	28° \approx 26'01	29.14722 AU
opposition	3805 Aug 04 02:06	13° \approx 03'50	0°31'49	direct	3812 Nov 07 15:40	27° \approx 02'31	
min. Earth dist.	3805 Aug 04 04:35	13° \approx 03'40	29.20252 AU				
direct	3805 Oct 23 09:55	11° \approx 40'10		conjunction	3813 Feb 18 15:14	29° \approx 30'56	0°03'48
				minimum elong	3813 Feb 18 15:15	29° \approx 30'56	0°03'48
conjunction	3806 Feb 03 20:03	14° \approx 08'41	0°28'07	behind sun begin	3813 Feb 18 08:55	29° \approx 30'21	
minimum elong	3806 Feb 03 20:03	14° \approx 08'41	0°28'08	behind sun end	3813 Feb 18 21:34	29° \approx 31'30	
max. Earth dist.	3806 Feb 03 18:06	14° \approx 08'30	31.19839 AU	max. Earth dist.	3813 Feb 18 18:07	29° \approx 31'09	31.14178 AU
	3806 Feb 26 21:35	15° \approx			3813 Mar 03 11:40	0° \approx	
retrograde	3806 May 18 16:46	16° \approx 37'58		retrograde	3813 Jun 03 04:11	2° \approx 01'29	
opposition	3806 Aug 06 14:40	15° \approx 14'54	0°28'13	opposition	3813 Aug 22 09:40	0° \approx 38'07	0°02'04
min. Earth dist.	3806 Aug 06 15:08	15° \approx 14'52	29.19460 AU	min. Earth dist.	3813 Aug 22 05:26	0° \approx 38'25	29.13599 AU
	3806 Aug 15 19:53	15° \approx			3813 Sep 15 17:03	30° \approx	
direct	3806 Oct 25 21:13	13° \approx 51'16		direct	3813 Nov 10 02:34	29° \approx 14'50	
	3806 Dec 31 03:05	15° \approx			3814 Jan 01 21:15	0° \approx	
conjunction	3807 Feb 06 05:27	16° \approx 19'47	0°24'44	conjunction	3814 Feb 21 01:16	1° \approx 43'13	0°00'11
minimum elong	3807 Feb 06 05:27	16° \approx 19'47	0°24'44	minimum elong	3814 Feb 21 01:14	1° \approx 43'13	0°00'12
max. Earth dist.	3807 Feb 06 04:40	16° \approx 19'43	31.19082 AU	behind sun begin	3814 Feb 20 18:55	1° \approx 42'39	
retrograde	3807 May 21 03:32	18° \approx 49'15		behind sun end	3814 Feb 21 07:34	1° \approx 43'47	
opposition	3807 Aug 09 03:32	17° \approx 26'09	0°24'35	max. Earth dist.	3814 Feb 21 05:31	1° \approx 43'35	31.12989 AU
min. Earth dist.	3807 Aug 09 04:03	17° \approx 26'07	29.18735 AU	desc. node	3814 Mar 10 23:25	2° \approx 23'32	
direct	3807 Oct 28 08:49	16° \approx 02'36		retrograde	3814 Jun 05 15:36	4° \approx 13'54	
				opposition	3814 Aug 24 22:41	2° \approx 50'26	0°-1'-42
conjunction	3808 Feb 08 14:48	18° \approx 31'06	0°21'18	min. Earth dist.	3814 Aug 24 18:39	2° \approx 50'42	29.12364 AU
minimum elong	3808 Feb 08 14:48	18° \approx 31'06	0°21'19	direct	3814 Nov 12 14:07	1° \approx 27'08	
max. Earth dist.	3808 Feb 08 15:06	18° \approx 31'08	31.18387 AU				
retrograde	3808 May 22 15:33	21° \approx 00'45		conjunction	3815 Feb 23 11:05	3° \approx 55'26	0°-3'-26
opposition	3808 Aug 10 16:21	19° \approx 37'38	0°20'54	minimum elong	3815 Feb 23 11:04	3° \approx 55'26	0°03'27
min. Earth dist.	3808 Aug 10 14:57	19° \approx 37'44	29.18042 AU	behind sun begin	3815 Feb 23 04:43	3° \approx 54'52	
direct	3808 Oct 29 20:50	18° \approx 14'10		behind sun end	3815 Feb 23 17:26	3° \approx 56'01	
				max. Earth dist.	3815 Feb 23 15:33	3° \approx 55'50	31.11735 AU
conjunction	3809 Feb 10 00:16	20° \approx 42'39	0°17'51	retrograde	3815 Jun 08 04:39	6° \approx 26'14	
minimum elong	3809 Feb 10 00:16	20° \approx 42'39	0°17'50	opposition	3815 Aug 27 11:41	5° \approx 02'40	0°-5'-30
max. Earth dist.	3809 Feb 10 00:58	20° \approx 42'43	31.17694 AU	min. Earth dist.	3815 Aug 27 05:56	5° \approx 03'03	29.11096 AU
retrograde	3809 May 25 02:53	23° \approx 12'31		direct	3815 Nov 15 02:14	3° \approx 39'20	
opposition	3809 Aug 13 05:23	21° \approx 49'22	0°17'10				
min. Earth dist.	3809 Aug 13 04:08	21° \approx 49'27	29.17347 AU	conjunction	3816 Feb 25 20:49	6° \approx 07'35	0°-6'-58
direct	3809 Nov 01 06:46	20° \approx 25'59		minimum elong	3816 Feb 25 20:49	6° \approx 07'35	0°06'59
				behind sun begin	3816 Feb 25 14:52	6° \approx 07'03	
conjunction	3810 Feb 12 09:55	22° \approx 54'27	0°14'21	behind sun end	3816 Feb 26 02:46	6° \approx 08'07	
minimum elong	3810 Feb 12 09:55	22° \approx 54'27	0°14'22	max. Earth dist.	3816 Feb 26 02:20	6° \approx 08'05	31.10464 AU
behind sun begin	3810 Feb 12 06:48	22° \approx 54'10		retrograde	3816 Jun 09 16:33	8° \approx 38'31	
behind sun end	3810 Feb 12 13:01	22° \approx 54'44		opposition	3816 Aug 29 00:52	7° \approx 14'49	0°-9'-17
max. Earth dist.	3810 Feb 12 12:09	22° \approx 54'39	31.16976 AU	min. Earth dist.	3816 Aug 28 19:09	7° \approx 15'12	29.09858 AU
retrograde	3810 May 27 13:39	25° \approx 24'30		direct	3816 Nov 16 14:51	5° \approx 51'29	
opposition	3810 Aug 15 18:20	24° \approx 01'20	0°13'25				
min. Earth dist.	3810 Aug 15 15:50	24° \approx 01'30	29.16583 AU	conjunction	3817 Feb 27 06:45	8° \approx 19'41	0°-10'-29
direct	3810 Nov 03 18:23	22° \approx 38'00		minimum elong	3817 Feb 27 06:45	8° \approx 19'41	0°10'31
				behind sun begin	3817 Feb 27 01:42	8° \approx 19'13	
conjunction	3811 Feb 14 19:34	25° \approx 06'28	0°10'51	behind sun end	3817 Feb 27 11:47	8° \approx 20'08	
minimum elong	3811 Feb 14 19:35	25° \approx 06'28	0°10'50	max. Earth dist.	3817 Feb 27 13:29	8° \approx 20'18	31.09268 AU
behind sun begin	3811 Feb 14 14:39	25° \approx 06'02		retrograde	3817 Jun 12 05:12	10° \approx 50'45	
behind sun end	3811 Feb 15 00:30	25° \approx 06'55		opposition	3817 Aug 31 13:47	9° \approx 26'57	0°-13'-4
max. Earth dist.	3811 Feb 14 21:22	25° \approx 06'38	31.16165 AU	min. Earth dist.	3817 Aug 31 06:01	9° \approx 27'29	29.08706 AU
retrograde	3811 May 30 02:40	27° \approx 36'42		direct	3817 Nov 19 03:37	8° \approx 03'37	
opposition	3811 Aug 18 07:19	26° \approx 13'30	0°09'39				
min. Earth dist.	3811 Aug 18 04:35	26° \approx 13'41	29.15723 AU	conjunction	3818 Mar 01 16:35	10° \approx 31'47	0°-14'00
direct	3811 Nov 06 03:13	24° \approx 50'12		minimum elong	3818 Mar 01 16:35	10° \approx 31'47	0°14'01
				behind sun begin	3818 Mar 01 13:14	10° \approx 31'28	
conjunction	3812 Feb 17 05:32	27° \approx 18'39	0°07'20	behind sun end	3818 Mar 01 19:56	10° \approx 32'05	
minimum elong	3812 Feb 17 05:31	27° \approx 18'39	0°07'20	max. Earth dist.	3818 Mar 01 23:45	10° \approx 32'27	31.08161 AU
behind sun begin	3812 Feb 16 23:38	27° \approx 18'07		retrograde	3818 Jun 14 16:19	13° \approx 03'00	
behind sun end	3812 Feb 17 11:24	27° \approx 19'11		opposition	3818 Sep 03 02:52	11° \approx 39'08	0°-16'-49

min. Earth dist.	3818 Sep 02 19:03	11° ✕ 39'40	29.07659 AU	direct	3826 Dec 09 09:33	27° ✕ 59'33	
direct	3818 Nov 21 14:00	10° ✕ 15'49			3827 Mar 09 08:19	0° °	
conjunction	3819 Mar 04 02:40	12° ✕ 43'57	0°-17'-30	conjunction	3827 Mar 21 14:13	0° ° 27'46	0°-44'-17
minimum elong	3819 Mar 04 02:39	12° ✕ 43'57	0°17'31	minimum elong	3827 Mar 21 14:12	0° ° 27'46	0°44'18
max. Earth dist.	3819 Mar 04 11:39	12° ✕ 44'48	31.07160 AU	max. Earth dist.	3827 Mar 22 03:00	0° ° 28'58	30.99086 AU
retrograde	3819 Jun 17 03:06	15° ✕ 15'20		retrograde	3827 Jul 05 11:23	3° ° 00'31	
opposition	3819 Sep 05 15:46	13° ✕ 51'25	0°-20'-34	opposition	3827 Sep 24 01:12	1° ° 36'07	0°-49'-1
min. Earth dist.	3819 Sep 05 06:23	13° ✕ 52'03	29.06696 AU	min. Earth dist.	3827 Sep 23 12:09	1° ° 37'01	28.98454 AU
direct	3819 Nov 24 02:13	12° ✕ 28'07		direct	3827 Dec 11 20:36	0° ° 12'59	
conjunction	3820 Mar 05 12:38	14° ✕ 56'16	0°-20'-59	conjunction	3828 Mar 23 01:03	2° ° 41'10	0°-47'-23
minimum elong	3820 Mar 05 12:38	14° ✕ 56'16	0°20'59	minimum elong	3828 Mar 23 01:03	2° ° 41'10	0°47'24
max. Earth dist.	3820 Mar 05 21:30	14° ✕ 57'06	31.06242 AU	max. Earth dist.	3828 Mar 23 15:27	2° ° 42'32	30.97772 AU
retrograde	3820 Jun 18 16:24	17° ✕ 27'50		retrograde	3828 Jul 06 23:03	5° ° 14'02	
opposition	3820 Sep 07 04:56	16° ✕ 03'52	0°-24'-16	opposition	3828 Sep 25 14:16	3° ° 49'32	0°-52'-18
min. Earth dist.	3820 Sep 06 18:58	16° ✕ 04'32	29.05819 AU	min. Earth dist.	3828 Sep 24 23:50	3° ° 50'32	28.97156 AU
direct	3820 Nov 25 11:31	14° ✕ 40'37		direct	3828 Dec 13 09:46	2° ° 26'23	
conjunction	3821 Mar 07 22:48	17° ✕ 08'46	0°-24'-26	conjunction	3829 Mar 25 11:42	4° ° 54'33	0°-50'-25
minimum elong	3821 Mar 07 22:48	17° ✕ 08'46	0°24'27	minimum elong	3829 Mar 25 11:41	4° ° 54'33	0°50'27
max. Earth dist.	3821 Mar 08 09:34	17° ✕ 09'46	31.05381 AU	max. Earth dist.	3829 Mar 26 01:50	4° ° 55'53	30.96505 AU
retrograde	3821 Jun 21 03:44	19° ✕ 40'31		retrograde	3829 Jul 09 12:23	7° ° 27'33	
opposition	3821 Sep 09 18:05	18° ✕ 16'31	0°-27'-57	opposition	3829 Sep 28 03:21	6° ° 02'57	0°-55'-31
min. Earth dist.	3821 Sep 09 07:23	18° ✕ 17'14	29.04965 AU	min. Earth dist.	3829 Sep 27 12:34	6° ° 03'58	28.95945 AU
direct	3821 Nov 27 23:29	16° ✕ 53'19		direct	3829 Dec 15 19:57	4° ° 39'46	
conjunction	3822 Mar 10 09:05	19° ✕ 21'28	0°-27'-51	conjunction	3830 Mar 27 22:40	7° ° 07'55	0°-53'-23
minimum elong	3822 Mar 10 09:04	19° ✕ 21'28	0°27'52	minimum elong	3830 Mar 27 22:40	7° ° 07'55	0°53'23
max. Earth dist.	3822 Mar 10 19:34	19° ✕ 22'28	31.04533 AU	max. Earth dist.	3830 Mar 28 14:36	7° ° 09'26	30.95336 AU
retrograde	3822 Jun 23 18:00	21° ✕ 53'25		retrograde	3830 Jul 11 22:51	9° ° 41'03	
opposition	3822 Sep 12 07:05	20° ✕ 29'23	0°-31'-36	opposition	3830 Sep 30 16:10	8° ° 16'23	0°-58'-38
min. Earth dist.	3822 Sep 11 19:29	20° ✕ 30'10	29.04111 AU	min. Earth dist.	3830 Sep 30 00:33	8° ° 17'28	28.94838 AU
direct	3822 Nov 30 09:19	19° ✕ 06'14		direct	3830 Dec 18 08:12	6° ° 53'12	
conjunction	3823 Mar 12 19:35	21° ✕ 34'25	0°-31'-14	conjunction	3831 Mar 30 09:31	9° ° 21'21	0°-56'-16
minimum elong	3823 Mar 12 19:35	21° ✕ 34'25	0°31'16	minimum elong	3831 Mar 30 09:31	9° ° 21'21	0°56'17
max. Earth dist.	3823 Mar 13 07:25	21° ✕ 35'32	31.03641 AU	max. Earth dist.	3831 Mar 31 01:19	9° ° 22'51	30.94298 AU
retrograde	3823 Jun 26 06:05	24° ✕ 06'34		retrograde	3831 Jul 14 12:17	11° ° 54'37	
opposition	3823 Sep 14 20:21	22° ✕ 42'29	0°-35'-12	opposition	3831 Oct 03 05:09	10° ° 29'54	-1°-1'-41
min. Earth dist.	3823 Sep 14 09:00	22° ✕ 43'15	29.03186 AU	min. Earth dist.	3831 Oct 02 12:25	10° ° 31'03	28.93873 AU
direct	3823 Dec 02 20:10	21° ✕ 19'23		direct	3831 Dec 20 17:47	9° ° 06'42	
conjunction	3824 Mar 14 06:02	23° ✕ 47'35	0°-34'-35	conjunction	3832 Mar 31 20:26	11° ° 34'53	0°-59'-4
minimum elong	3824 Mar 14 06:02	23° ✕ 47'35	0°34'35	minimum elong	3832 Mar 31 20:26	11° ° 34'53	0°59'05
max. Earth dist.	3824 Mar 14 17:55	23° ✕ 48'42	31.02676 AU	max. Earth dist.	3832 Apr 01 13:50	11° ° 36'32	30.93384 AU
retrograde	3824 Jun 27 20:35	26° ✕ 19'54		retrograde	3832 Jul 16 00:06	14° ° 08'18	
opposition	3824 Sep 16 09:36	24° ✕ 55'46	0°-38'-44	opposition	3832 Oct 04 18:12	12° ° 43'32	-1°-4'-38
min. Earth dist.	3824 Sep 15 20:54	24° ✕ 56'38	29.02168 AU	min. Earth dist.	3832 Oct 04 01:23	12° ° 44'41	28.93023 AU
direct	3824 Dec 04 08:03	23° ✕ 32'41		direct	3832 Dec 22 04:04	11° ° 20'21	
conjunction	3825 Mar 16 16:45	26° ✕ 00'55	0°-37'-52	conjunction	3833 Apr 03 07:32	13° ° 48'34	-1°-1'-47
minimum elong	3825 Mar 16 16:45	26° ✕ 00'55	0°37'53	minimum elong	3833 Apr 03 07:32	13° ° 48'34	1°01'49
max. Earth dist.	3825 Mar 17 05:01	26° ✕ 02'04	31.01586 AU	max. Earth dist.	3833 Apr 04 01:16	13° ° 50'14	30.92597 AU
retrograde	3825 Jun 30 09:58	28° ✕ 33'24		retrograde	3833 Jul 18 14:38	16° ° 22'07	
opposition	3825 Sep 18 22:53	27° ✕ 09'11	0°-42'-14	opposition	3833 Oct 07 07:00	14° ° 57'19	-1°-7'-30
min. Earth dist.	3825 Sep 18 10:49	27° ✕ 10'01	29.01025 AU	min. Earth dist.	3833 Oct 06 12:46	14° ° 58'34	28.92284 AU
direct	3825 Dec 06 20:21	25° ✕ 46'06		direct	3833 Dec 24 15:34	13° ° 34'09	
conjunction	3826 Mar 19 03:34	28° ✕ 14'20	0°-41'-6	conjunction	3834 Apr 05 18:47	16° ° 02'24	-1°-4'-25
minimum elong	3826 Mar 19 03:34	28° ✕ 14'20	0°41'07	minimum elong	3834 Apr 05 18:47	16° ° 02'24	1°04'26
max. Earth dist.	3826 Mar 19 16:29	28° ✕ 15'33	31.00388 AU	max. Earth dist.	3834 Apr 06 13:05	16° ° 04'08	30.91880 AU
	3826 May 09 09:24	0° °		retrograde	3834 Jul 21 04:13	18° ° 36'06	
retrograde	3826 Jul 02 23:41	0° ° 46'57		opposition	3834 Oct 09 20:02	17° ° 11'16	-1°-10'-15
	3826 Aug 28 22:15	30° ° ✕		min. Earth dist.	3834 Oct 09 02:19	17° ° 12'29	28.91598 AU
opposition	3826 Sep 21 12:01	29° ✕ 22'40	0°-45'-39	direct	3834 Dec 27 02:55	15° ° 48'09	
min. Earth dist.	3826 Sep 20 22:30	29° ✕ 23'35	28.99768 AU				

conjunction	3835 Apr 08 06:07	18° Υ 16'26	-1°-6'-57	conjunction	3843 Apr 26 04:48	6° C 11'15	-1°-23'-19
minimum elong	3835 Apr 08 06:07	18° Υ 16'26	1°06'59	minimum elong	3843 Apr 26 04:48	6° C 11'15	1°23'21
max. Earth dist.	3835 Apr 09 01:14	18° Υ 18'15	30.91208 AU	max. Earth dist.	3843 Apr 27 01:54	6° C 13'14	30.84462 AU
retrograde	3835 Jul 23 18:20	20° Υ 50'16		retrograde	3843 Aug 11 02:14	8° C 45'46	
opposition	3835 Oct 12 08:55	19° Υ 25'25	-1°-12'-55	opposition	3843 Oct 30 15:42	7° C 20'28	-1°-29'-56
min. Earth dist.	3835 Oct 11 13:50	19° Υ 26'44	28.90924 AU	min. Earth dist.	3843 Oct 29 19:46	7° C 21'51	28.84237 AU
direct	3835 Dec 29 15:19	18° Υ 02'19		direct	3844 Jan 16 12:05	5° C 57'09	
conjunction	3836 Apr 09 17:39	20° Υ 30'39	-1°-9'-23	conjunction	3844 Apr 27 16:59	8° C 25'40	-1°-24'-50
minimum elong	3836 Apr 09 17:38	20° Υ 30'39	1°09'23	minimum elong	3844 Apr 27 16:59	8° C 25'40	1°24'50
max. Earth dist.	3836 Apr 10 12:25	20° Υ 32'26	30.90514 AU	max. Earth dist.	3844 Apr 28 14:50	8° C 27'44	30.83873 AU
retrograde	3836 Jul 25 08:01	23° Υ 04'37		retrograde	3844 Aug 12 16:25	11° C 00'16	
opposition	3836 Oct 13 22:01	21° Υ 39'44	-1°-15'-27	min. Earth dist.	3844 Oct 31 06:49	9° C 36'26	28.83719 AU
min. Earth dist.	3836 Oct 13 03:43	21° Υ 40'59	28.90217 AU	opposition	3844 Nov 01 04:13	9° C 34'57	-1°-31'-29
direct	3836 Dec 31 02:27	20° Υ 16'38		direct	3845 Jan 18 00:00	8° C 11'39	
conjunction	3837 Apr 12 05:26	22° Υ 45'00	-1°-11'-42	conjunction	3845 Apr 30 05:08	10° C 40'14	-1°-26'-13
minimum elong	3837 Apr 12 05:26	22° Υ 45'00	1°11'44	minimum elong	3845 Apr 30 05:08	10° C 40'14	1°26'15
max. Earth dist.	3837 Apr 13 01:18	22° Υ 46'53	30.89764 AU	max. Earth dist.	3845 May 01 02:46	10° C 42'17	30.83417 AU
retrograde	3837 Jul 27 21:48	25° Υ 19'05		retrograde	3845 Aug 15 06:32	13° C 14'55	
opposition	3837 Oct 16 10:59	23° Υ 54'09	-1°-17'-53	opposition	3845 Nov 03 16:53	11° C 49'36	-1°-32'-53
min. Earth dist.	3837 Oct 15 15:53	23° Υ 55'28	28.89416 AU	min. Earth dist.	3845 Nov 02 20:09	11° C 51'03	28.83331 AU
direct	3838 Jan 02 16:13	22° Υ 31'03		direct	3846 Jan 20 11:07	10° C 26'19	
conjunction	3838 Apr 14 17:14	24° Υ 59'26	-1°-13'-56	conjunction	3846 May 02 17:35	12° C 54'58	-1°-27'-28
minimum elong	3838 Apr 14 17:14	24° Υ 59'26	1°13'56	minimum elong	3846 May 02 17:35	12° C 54'58	1°27'28
max. Earth dist.	3838 Apr 15 12:03	25° Υ 01'13	30.88911 AU	max. Earth dist.	3846 May 03 16:27	12° C 57'08	30.83082 AU
retrograde	3838 Jul 30 11:26	27° Υ 33'36			3846 Jul 05 17:56	15° C	
opposition	3838 Oct 18 23:54	26° Υ 08'36	-1°-20'-12	retrograde	3846 Aug 17 21:18	15° C 29'44	
min. Earth dist.	3838 Oct 18 05:13	26° Υ 09'54	28.88524 AU		3846 Sep 30 23:25	15° R C	
direct	3839 Jan 05 03:12	24° Υ 45'28		min. Earth dist.	3846 Nov 05 07:40	14° C 05'57	28.83037 AU
conjunction	3839 Apr 17 05:12	27° Υ 13'52	-1°-16'-2	opposition	3846 Nov 06 05:17	14° C 04'27	-1°-34'-9
minimum elong	3839 Apr 17 05:11	27° Υ 13'52	1°16'04	direct	3847 Jan 23 00:43	12° C 41'11	
max. Earth dist.	3839 Apr 18 01:11	27° Υ 15'46	30.87975 AU		3847 Apr 30 21:12	15° C	
retrograde	3839 Aug 01 22:38	29° Υ 48'06		conjunction	3847 May 05 05:58	15° C 09'56	-1°-28'-35
opposition	3839 Oct 21 12:49	28° Υ 23'02	-1°-22'-24	minimum elong	3847 May 05 05:58	15° C 09'56	1°28'37
min. Earth dist.	3839 Oct 20 17:48	28° Υ 24'21	28.87559 AU	max. Earth dist.	3847 May 06 03:59	15° C 12'01	30.82827 AU
direct	3840 Jan 07 16:01	26° Υ 59'52		retrograde	3847 Aug 20 11:19	17° C 44'48	
conjunction	3840 Apr 18 16:54	29° Υ 28'15	-1°-18'-2	opposition	3847 Nov 08 17:55	16° C 19'31	-1°-35'-16
minimum elong	3840 Apr 18 16:54	29° Υ 28'15	1°18'03	min. Earth dist.	3847 Nov 07 20:45	16° C 20'59	28.82814 AU
max. Earth dist.	3840 Apr 19 12:16	29° Υ 30'06	30.87008 AU	direct	3848 Jan 10 17:51	15° R C	
retrograde	3840 May 02 17:46	0° C			3848 Jan 25 11:29	14° C 56'17	
min. Earth dist.	3840 Aug 03 12:08	2° C 02'34			3848 Feb 09 01:13	15° C	
opposition	3840 Oct 22 06:10	0° C 38'46	28.86604 AU	conjunction	3848 May 06 18:37	17° C 25'06	-1°-29'-34
direct	3840 Oct 23 01:41	0° C 37'25	-1°-24'-29	minimum elong	3848 May 06 18:37	17° C 25'06	1°29'34
	3840 Nov 15 08:55	30° R Υ		max. Earth dist.	3848 May 07 17:45	17° C 27'17	30.82604 AU
	3841 Jan 09 02:35	29° Υ 14'11		retrograde	3848 Aug 22 00:01	20° C 00'03	
	3841 Mar 02 13:09	0° C		min. Earth dist.	3848 Nov 09 09:17	18° C 36'16	28.82578 AU
conjunction	3841 Apr 21 04:54	1° C 42'36	-1°-19'-55	opposition	3848 Nov 10 06:29	18° C 34'48	-1°-36'-15
minimum elong	3841 Apr 21 04:54	1° C 42'36	1°19'57	direct	3849 Jan 27 00:17	17° C 11'35	
max. Earth dist.	3841 Apr 22 01:27	1° C 44'32	30.86061 AU	conjunction	3849 May 09 07:27	19° C 40'28	-1°-30'-24
retrograde	3841 Aug 05 23:44	4° C 16'58		minimum elong	3849 May 09 07:27	19° C 40'28	1°30'26
opposition	3841 Oct 25 14:20	2° C 51'45	-1°-26'-26	max. Earth dist.	3849 May 10 05:21	19° C 42'33	30.82349 AU
min. Earth dist.	3841 Oct 24 19:08	2° C 53'05	28.85697 AU	retrograde	3849 Aug 24 14:51	22° C 15'28	
direct	3842 Jan 11 13:33	1° C 28'29		opposition	3849 Nov 12 18:55	20° C 50'14	-1°-37'-5
conjunction	3842 Apr 23 16:54	3° C 56'54	-1°-21'-41	min. Earth dist.	3849 Nov 11 21:50	20° C 51'42	28.82292 AU
minimum elong	3842 Apr 23 16:54	3° C 56'54	1°21'41	direct	3850 Jan 29 11:15	19° C 27'00	
max. Earth dist.	3842 Apr 24 13:27	3° C 58'51	30.85207 AU	conjunction	3850 May 11 20:31	21° C 55'58	-1°-31'-7
retrograde	3842 Aug 08 13:32	6° C 31'21		minimum elong	3850 May 11 20:31	21° C 55'58	1°31'07
min. Earth dist.	3842 Oct 27 06:32	5° C 07'30	28.84903 AU	max. Earth dist.	3850 May 12 18:52	21° C 58'05	30.82004 AU
opposition	3842 Oct 28 02:58	5° C 06'05	-1°-28'-15	retrograde	3850 Aug 27 02:46	24° C 31'00	
direct	3843 Jan 14 01:07	3° C 42'47		min. Earth dist.	3850 Nov 14 11:16	23° C 07'10	28.81896 AU
				opposition	3850 Nov 15 07:29	23° C 05'45	-1°-37'-45

direct	3851 Jan 31 22:54	21° ♄ 42'30		direct	3859 Feb 18 22:23	9° ♄ 43'28	
conjunction	3851 May 14 09:25	24° ♄ 11'29	-1°-31'-41	conjunction	3859 Jun 01 18:54	12° ♄ 12'49	-1°-31'-10
minimum elong	3851 May 14 09:25	24° ♄ 11'29	1°31'43	minimum elong	3859 Jun 01 18:55	12° ♄ 12'49	1°31'12
max. Earth dist.	3851 May 15 07:01	24° ♄ 13'31	30.81570 AU	max. Earth dist.	3859 Jun 02 16:30	12° ♄ 14'51	30.79371 AU
retrograde	3851 Aug 29 15:47	26° ♄ 46'31		retrograde	3859 Sep 17 01:59	14° ♄ 47'40	
opposition	3851 Nov 17 19:57	25° ♄ 21'14	-1°-38'-17	opposition	3859 Dec 05 20:41	13° ♄ 22'18	-1°-37'-7
min. Earth dist.	3851 Nov 16 23:15	25° ♄ 22'41	28.81419 AU	min. Earth dist.	3859 Dec 05 01:35	13° ♄ 23'39	28.79554 AU
direct	3852 Feb 03 10:46	23° ♄ 57'55		direct	3860 Feb 21 10:13	11° ♄ 58'40	
conjunction	3852 May 15 22:29	26° ♄ 26'56	-1°-32'-6	conjunction	3860 Jun 03 08:28	14° ♄ 28'06	-1°-30'-27
minimum elong	3852 May 15 22:29	26° ♄ 26'56	1°32'08	minimum elong	3860 Jun 03 08:28	14° ♄ 28'06	1°30'29
max. Earth dist.	3852 May 16 19:58	26° ♄ 28'58	30.81059 AU	max. Earth dist.	3860 Jun 04 05:13	14° ♄ 30'03	30.79566 AU
retrograde	3852 Aug 31 03:40	29° ♄ 01'58		retrograde	3860 Sep 18 15:52	17° ♄ 02'57	
opposition	3852 Nov 19 08:21	27° ♄ 36'38	-1°-38'-40	opposition	3860 Dec 07 08:28	15° ♄ 37'39	-1°-36'-18
min. Earth dist.	3852 Nov 18 12:51	27° ♄ 38'00	28.80897 AU	min. Earth dist.	3860 Dec 06 13:07	15° ♄ 39'01	28.79760 AU
direct	3853 Feb 04 21:26	26° ♄ 13'15		direct	3861 Feb 22 21:34	14° ♄ 14'00	
conjunction	3853 May 18 11:39	28° ♄ 42'17	-1°-32'-24	conjunction	3861 Jun 05 22:14	16° ♄ 43'33	-1°-29'-37
minimum elong	3853 May 18 11:39	28° ♄ 42'17	1°32'26	minimum elong	3861 Jun 05 22:14	16° ♄ 43'33	1°29'39
max. Earth dist.	3853 May 19 09:11	28° ♄ 44'19	30.80543 AU	max. Earth dist.	3861 Jun 06 18:41	16° ♄ 45'29	30.79758 AU
retrograde	3853 Jun 23 08:13	0° ♄		retrograde	3861 Sep 21 04:17	19° ♄ 18'23	
opposition	3853 Sep 02 17:20	1° ♄ 17'16		opposition	3861 Dec 09 20:27	17° ♄ 53'09	-1°-35'-19
min. Earth dist.	3853 Nov 17 00:39	30° ♄		min. Earth dist.	3861 Dec 09 02:37	17° ♄ 54'24	28.79933 AU
direct	3853 Nov 21 20:31	29° ♄ 51'54	-1°-38'-54	direct	3862 Feb 25 07:51	16° ♄ 29'30	
conjunction	3853 Nov 21 00:09	29° ♄ 53'19	28.80387 AU	conjunction	3862 Jun 08 12:02	18° ♄ 59'08	-1°-28'-38
direct	3854 Feb 07 09:31	28° ♄ 28'26		minimum elong	3862 Jun 08 12:02	18° ♄ 59'08	1°28'38
	3854 Apr 25 00:45	0° ♄		max. Earth dist.	3862 Jun 09 07:54	19° ♄ 01'00	30.79905 AU
conjunction	3854 May 21 00:40	0° ♄ 57'30	-1°-32'-33	retrograde	3862 Sep 23 17:51	21° ♄ 33'56	
minimum elong	3854 May 21 00:40	0° ♄ 57'30	1°32'33	opposition	3862 Dec 12 08:13	20° ♄ 08'44	-1°-34'-11
max. Earth dist.	3854 May 21 21:34	0° ♄ 59'28	30.80051 AU	min. Earth dist.	3862 Dec 11 13:59	20° ♄ 10'01	28.80032 AU
retrograde	3854 Sep 05 06:16	3° ♄ 32'27		direct	3863 Feb 27 19:40	18° ♄ 45'03	
opposition	3854 Nov 24 08:42	2° ♄ 07'02	-1°-38'-59	conjunction	3863 Jun 11 01:52	21° ♄ 14'46	-1°-27'-31
min. Earth dist.	3854 Nov 23 13:21	2° ♄ 08'23	28.79943 AU	minimum elong	3863 Jun 11 01:52	21° ♄ 14'46	1°27'33
direct	3855 Feb 09 21:12	0° ♄ 43'30		max. Earth dist.	3863 Jun 11 20:29	21° ♄ 16'31	30.79958 AU
conjunction	3855 May 23 13:52	3° ♄ 12'36	-1°-32'-33	retrograde	3863 Sep 26 06:14	23° ♄ 49'31	
minimum elong	3855 May 23 13:52	3° ♄ 12'36	1°32'35	opposition	3863 Dec 14 20:08	22° ♄ 24'20	-1°-32'-55
max. Earth dist.	3855 May 24 11:42	3° ♄ 14'39	30.79660 AU	min. Earth dist.	3863 Dec 14 03:30	22° ♄ 25'31	28.80048 AU
retrograde	3855 Sep 07 20:00	5° ♄ 47'31		direct	3864 Mar 01 07:06	21° ♄ 00'37	
opposition	3855 Nov 26 20:44	4° ♄ 22'04	-1°-38'-55	conjunction	3864 Jun 12 15:48	23° ♄ 30'22	-1°-26'-16
min. Earth dist.	3855 Nov 26 00:37	4° ♄ 23'29	28.79605 AU	minimum elong	3864 Jun 12 15:48	23° ♄ 30'22	1°26'17
direct	3856 Feb 12 10:44	2° ♄ 58'29		max. Earth dist.	3864 Jun 13 10:33	23° ♄ 32'08	30.79946 AU
conjunction	3856 May 25 02:54	5° ♄ 27'37	-1°-32'-25	retrograde	3864 Sep 27 19:25	26° ♄ 05'03	
minimum elong	3856 May 25 02:54	5° ♄ 27'37	1°32'25	opposition	3864 Dec 16 07:47	24° ♄ 39'52	-1°-31'-31
max. Earth dist.	3856 May 25 23:45	5° ♄ 29'35	30.79388 AU	min. Earth dist.	3864 Dec 15 14:59	24° ♄ 41'03	28.79993 AU
retrograde	3856 Sep 09 09:47	8° ♄ 02'31		direct	3865 Mar 03 20:27	23° ♄ 16'04	
opposition	3856 Nov 28 08:52	6° ♄ 37'04	-1°-38'-42	conjunction	3865 Jun 15 05:39	25° ♄ 45'53	-1°-24'-53
min. Earth dist.	3856 Nov 27 13:17	6° ♄ 38'26	28.79407 AU	minimum elong	3865 Jun 15 05:39	25° ♄ 45'53	1°24'55
direct	3857 Feb 13 21:43	5° ♄ 13'26		max. Earth dist.	3865 Jun 15 22:47	25° ♄ 47'30	30.79881 AU
conjunction	3857 May 27 16:18	7° ♄ 42'38	-1°-32'-9	retrograde	3865 Sep 30 08:48	28° ♄ 20'28	
minimum elong	3857 May 27 16:18	7° ♄ 42'38	1°32'10	opposition	3865 Dec 18 19:19	26° ♄ 55'17	-1°-29'-59
max. Earth dist.	3857 May 28 14:11	7° ♄ 44'42	30.79253 AU	min. Earth dist.	3865 Dec 18 03:43	26° ♄ 56'23	28.79931 AU
retrograde	3857 Sep 11 23:00	10° ♄ 17'29		direct	3866 Mar 06 07:19	25° ♄ 31'25	
opposition	3857 Nov 30 20:42	8° ♄ 52'03	-1°-38'-20	conjunction	3866 Jun 17 19:36	28° ♄ 01'16	-1°-23'-23
min. Earth dist.	3857 Nov 30 00:58	8° ♄ 53'26	28.79334 AU	minimum elong	3866 Jun 17 19:36	28° ♄ 01'16	1°23'24
direct	3858 Feb 16 10:55	7° ♄ 28'24		max. Earth dist.	3866 Jun 18 13:20	28° ♄ 02'56	30.79831 AU
conjunction	3858 May 30 05:35	9° ♄ 57'40	-1°-31'-43	retrograde	3866 Aug 16 17:15	0° ♄	
minimum elong	3858 May 30 05:35	9° ♄ 57'40	1°31'44	opposition	3866 Oct 02 22:04	0° ♄ 35'45	
max. Earth dist.	3858 May 31 02:20	9° ♄ 59'38	30.79257 AU	min. Earth dist.	3866 Nov 20 02:43	30° ♄	
retrograde	3858 Sep 14 14:05	12° ♄ 32'31		direct	3866 Dec 21 06:47	29° ♄ 10'34	-1°-28'-18
opposition	3858 Dec 03 08:41	11° ♄ 07'07	-1°-37'-48	min. Earth dist.	3866 Dec 20 15:19	29° ♄ 11'39	28.79900 AU
min. Earth dist.	3858 Dec 02 12:52	11° ♄ 08'30	28.79402 AU	direct	3867 Mar 08 21:15	27° ♄ 46'37	

	3867 Jun 13 01:18	0°☾		minimum elong	3875 Jul 09 01:18	18°☾16'49	1°04'29
				max. Earth dist.	3875 Jul 09 14:11	18°☾18'01	30.84089 AU
conjunction	3867 Jun 20 09:12	0°☾16'31 -1°-21'-45		retrograde	3875 Oct 23 16:19	20°☾50'21	
minimum elong	3867 Jun 20 09:13	0°☾16'31 1°21'47		opposition	3876 Jan 10 11:43	19°☾25'38	-1°-7'-31
max. Earth dist.	3867 Jun 21 01:29	0°☾18'03 30.79850 AU		min. Earth dist.	3876 Jan 10 01:01	19°☾26'23	28.84435 AU
retrograde	3867 Oct 05 12:37	2°☾50'53		direct	3876 Mar 28 07:13	18°☾01'24	
opposition	3867 Dec 23 18:12	1°☾25'41 -1°-26'-30					
min. Earth dist.	3867 Dec 23 02:57	1°☾26'46 28.79971 AU		conjunction	3876 Jul 10 15:32	20°☾31'53	-1°-1'-50
direct	3868 Mar 10 09:45	0°☾01'41		minimum elong	3876 Jul 10 15:32	20°☾31'53	1°01'51
				max. Earth dist.	3876 Jul 11 02:12	20°☾32'53	30.84679 AU
conjunction	3868 Jun 21 23:11	2°☾31'38 -1°-20'00		retrograde	3876 Oct 25 06:13	23°☾05'17	
minimum elong	3868 Jun 21 23:11	2°☾31'38 1°20'01		opposition	3877 Jan 11 22:42	21°☾40'35	-1°-4'-39
max. Earth dist.	3868 Jun 22 16:03	2°☾33'13 30.79973 AU		min. Earth dist.	3877 Jan 11 12:47	21°☾41'17	28.84986 AU
retrograde	3868 Oct 07 00:01	5°☾05'53		direct	3877 Mar 30 19:30	20°☾16'17	
opposition	3868 Dec 25 05:28	3°☾40'43 -1°-24'-33					
min. Earth dist.	3868 Dec 24 15:01	3°☾41'44 28.80157 AU		conjunction	3877 Jul 13 05:54	22°☾46'50	0°-59'-6
direct	3869 Mar 12 22:07	2°☾16'38		minimum elong	3877 Jul 13 05:54	22°☾46'50	0°59'07
				max. Earth dist.	3877 Jul 13 16:34	22°☾47'50	30.85196 AU
conjunction	3869 Jun 24 13:03	4°☾46'38 -1°-18'-8		retrograde	3877 Oct 27 17:53	25°☾20'05	
minimum elong	3869 Jun 24 13:03	4°☾46'38 1°18'10		opposition	3878 Jan 14 09:44	23°☾55'25	-1°-1'-41
max. Earth dist.	3869 Jun 25 04:53	4°☾48'07 30.80243 AU		min. Earth dist.	3878 Jan 14 01:07	23°☾56'01	28.85473 AU
retrograde	3869 Oct 09 14:05	7°☾20'47		direct	3878 Apr 02 08:09	22°☾31'04	
opposition	3869 Dec 27 16:42	5°☾55'38 -1°-22'-29					
min. Earth dist.	3869 Dec 27 01:51	5°☾56'42 28.80500 AU		conjunction	3878 Jul 15 19:53	25°☾01'38	0°-56'-17
direct	3870 Mar 15 10:06	4°☾31'32		minimum elong	3878 Jul 15 19:54	25°☾01'38	0°56'18
				max. Earth dist.	3878 Jul 16 04:57	25°☾02'28	30.85687 AU
conjunction	3870 Jun 27 02:51	7°☾01'35 -1°-16'-8		retrograde	3878 Oct 30 08:01	27°☾34'43	
minimum elong	3870 Jun 27 02:51	7°☾01'35 1°16'09		opposition	3879 Jan 16 20:35	26°☾10'04	0°-58'-37
max. Earth dist.	3870 Jun 27 18:47	7°☾03'05 30.80656 AU		min. Earth dist.	3879 Jan 16 11:58	26°☾10'41	28.85963 AU
retrograde	3870 Oct 12 02:15	9°☾35'38		direct	3879 Apr 04 20:55	24°☾45'39	
opposition	3870 Dec 30 04:00	8°☾10'33 -1°-20'-17					
min. Earth dist.	3870 Dec 29 14:21	8°☾11'31 28.80990 AU		conjunction	3879 Jul 18 10:01	27°☾16'16	0°-53'-23
direct	3871 Mar 17 20:45	6°☾46'25		minimum elong	3879 Jul 18 10:02	27°☾16'16	0°53'24
				max. Earth dist.	3879 Jul 18 18:53	27°☾17'05	30.86186 AU
conjunction	3871 Jun 29 16:46	9°☾16'32 -1°-14'-2		retrograde	3879 Nov 01 19:38	29°☾49'11	
minimum elong	3871 Jun 29 16:47	9°☾16'32 1°14'03		opposition	3880 Jan 19 07:23	28°☾24'34	0°-55'-29
max. Earth dist.	3871 Jun 30 08:17	9°☾17'59 30.81235 AU		min. Earth dist.	3880 Jan 19 00:23	28°☾25'04	28.86489 AU
retrograde	3871 Oct 14 14:49	11°☾50'29		direct	3880 Apr 06 08:22	27°☾00'06	
opposition	3872 Jan 01 15:05	10°☾25'28 -1°-17'-58					
min. Earth dist.	3872 Jan 01 00:48	10°☾26'28 28.81626 AU		conjunction	3880 Jul 20 00:06	29°☾30'44	0°-50'-24
direct	3872 Mar 19 08:33	9°☾01'19		minimum elong	3880 Jul 20 00:06	29°☾30'44	0°50'25
				max. Earth dist.	3880 Jul 20 08:05	29°☾31'29	30.86758 AU
conjunction	3872 Jul 01 06:44	11°☾31'30 -1°-11'-48			3880 Aug 02 03:22	0°☾	
minimum elong	3872 Jul 01 06:44	11°☾31'31 1°11'49		retrograde	3880 Nov 03 07:57	2°☾03'30	
max. Earth dist.	3872 Jul 01 21:20	11°☾32'53 30.81924 AU		opposition	3881 Jan 20 18:03	0°☾38'56	0°-52'-15
retrograde	3872 Oct 16 02:15	14°☾05'23		min. Earth dist.	3881 Jan 20 10:36	0°☾39'28	28.87097 AU
opposition	3873 Jan 03 02:20	12°☾40'26 -1°-15'-32			3881 Feb 13 12:32	30°☾☾	
min. Earth dist.	3873 Jan 02 13:35	12°☾41'20 28.82353 AU		direct	3881 Apr 08 20:53	29°☾14'24	
direct	3873 Mar 21 19:01	11°☾16'17			3881 May 31 19:45	0°☾	
conjunction	3873 Jul 03 20:56	13°☾46'34 -1°-9'-28		conjunction	3881 Jul 22 14:04	1°☾45'05	0°-47'-21
minimum elong	3873 Jul 03 20:57	13°☾46'34 1°09'29		minimum elong	3881 Jul 22 14:04	1°☾45'05	0°47'22
max. Earth dist.	3873 Jul 04 11:32	13°☾47'56 30.82677 AU		max. Earth dist.	3881 Jul 22 21:10	1°☾45'45	30.87413 AU
retrograde	3873 Oct 18 14:57	16°☾20'20		retrograde	3881 Nov 05 18:42	4°☾17'42	
opposition	3874 Jan 05 13:19	14°☾55'29 -1°-12'-58		opposition	3882 Jan 23 04:44	2°☾53'12	0°-48'-57
min. Earth dist.	3874 Jan 05 00:35	14°☾56'23 28.83097 AU		min. Earth dist.	3882 Jan 22 22:43	2°☾53'37	28.87820 AU
direct	3874 Mar 24 07:02	13°☾31'19		direct	3882 Apr 11 07:13	1°☾28'38	
conjunction	3874 Jul 06 11:04	16°☾01'41 -1°-7'-1		conjunction	3882 Jul 25 04:04	3°☾59'22	0°-44'-14
minimum elong	3874 Jul 06 11:04	16°☾01'41 1°07'02		minimum elong	3882 Jul 25 04:04	3°☾59'22	0°44'15
max. Earth dist.	3874 Jul 06 23:51	16°☾02'53 30.83411 AU		max. Earth dist.	3882 Jul 25 11:12	4°☾00'02	30.88212 AU
retrograde	3874 Oct 21 03:52	18°☾35'21		retrograde	3882 Nov 08 06:43	6°☾31'50	
opposition	3875 Jan 08 00:34	17°☾10'34 -1°-10'-18		opposition	3883 Jan 25 15:20	5°☾07'24	0°-45'-35
min. Earth dist.	3875 Jan 07 13:14	17°☾11'22 28.83812 AU		min. Earth dist.	3883 Jan 25 08:58	5°☾07'51	28.88680 AU
direct	3875 Mar 26 17:28	15°☾46'22		direct	3883 Apr 13 18:40	3°☾42'49	
conjunction	3875 Jul 09 01:17	18°☾16'49 -1°-4'-28		conjunction	3883 Jul 27 17:53	6°☾13'37	0°-41'-2

minimum elong	3883 Jul 27 17:53	6°♏13'37	0°41'03	conjunction	3891 Aug 15 10:17	24°♏08'15	0°-13'-45
max. Earth dist.	3883 Jul 27 23:39	6°♏14'09	30.89148 AU	minimum elong	3891 Aug 15 10:17	24°♏08'15	0°13'45
retrograde	3883 Nov 10 18:15	8°♏45'58		behind sun begin	3891 Aug 15 06:57	24°♏07'57	
opposition	3884 Jan 28 02:03	7°♏21'37	0°-42'-8	behind sun end	3891 Aug 15 13:37	24°♏08'32	
min. Earth dist.	3884 Jan 27 20:45	7°♏22'00	28.89686 AU	max. Earth dist.	3891 Aug 15 08:46	24°♏08'07	30.96978 AU
direct	3884 Apr 15 04:41	5°♏57'02		retrograde	3891 Nov 28 19:37	26°♏39'21	
				opposition	3892 Feb 14 14:27	25°♏15'34	0°-12'-46
conjunction	3884 Jul 29 08:02	8°♏27'54	0°-37'-47	min. Earth dist.	3892 Feb 14 15:50	25°♏15'28	28.97337 AU
minimum elong	3884 Jul 29 08:02	8°♏27'54	0°37'48	direct	3892 May 03 07:18	23°♏50'46	
max. Earth dist.	3884 Jul 29 14:11	8°♏28'28	30.90214 AU				
retrograde	3884 Nov 12 05:36	11°♏00'08		conjunction	3892 Aug 17 00:04	26°♏21'57	0°-10'-13
opposition	3885 Jan 29 12:31	9°♏35'54	0°-38'-37	minimum elong	3892 Aug 17 00:04	26°♏21'57	0°10'14
min. Earth dist.	3885 Jan 29 07:42	9°♏36'14	28.90786 AU	behind sun begin	3892 Aug 16 18:53	26°♏21'29	
direct	3885 Apr 17 17:38	8°♏11'19		behind sun end	3892 Aug 17 05:16	26°♏22'25	
				max. Earth dist.	3892 Aug 16 20:55	26°♏21'41	30.97704 AU
conjunction	3885 Jul 31 22:02	10°♏42'17	0°-34'-28	retrograde	3892 Nov 30 05:37	28°♏52'52	
minimum elong	3885 Jul 31 22:03	10°♏42'17	0°34'29	opposition	3893 Feb 16 00:47	27°♏29'06	0°-8'-59
max. Earth dist.	3885 Aug 01 02:13	10°♏42'40	30.91355 AU	min. Earth dist.	3893 Feb 16 03:27	27°♏28'55	28.98085 AU
retrograde	3885 Nov 14 18:57	13°♏14'24		direct	3893 May 05 18:01	26°♏04'14	
opposition	3886 Jan 31 23:09	11°♏50'16	0°-35'-3				
min. Earth dist.	3886 Jan 31 18:57	11°♏50'34	28.91943 AU	conjunction	3893 Aug 19 13:52	28°♏35'25	0°-6'-40
direct	3886 Apr 20 05:01	10°♏25'41		minimum elong	3893 Aug 19 13:52	28°♏35'25	0°06'41
				behind sun begin	3893 Aug 19 07:43	28°♏34'52	
conjunction	3886 Aug 03 12:05	12°♏56'44	0°-31'-7	behind sun end	3893 Aug 19 20:01	28°♏35'58	
minimum elong	3886 Aug 03 12:05	12°♏56'44	0°31'08	max. Earth dist.	3893 Aug 19 11:01	28°♏35'11	30.98476 AU
max. Earth dist.	3886 Aug 03 16:23	12°♏57'08	30.92499 AU		3893 Sep 28 17:51	0°♐	
	3886 Oct 06 11:42	15°♏		retrograde	3893 Dec 02 15:22	1°♐06'08	
retrograde	3886 Nov 17 06:34	15°♏28'44			3894 Feb 08 00:26	30°♐♏	
	3886 Dec 29 19:18	15°♐♏		opposition	3894 Feb 18 11:08	29°♏42'25	0°-5'-11
opposition	3887 Feb 03 09:50	14°♏04'42	0°-31'-26	min. Earth dist.	3894 Feb 18 14:11	29°♏42'12	28.98888 AU
min. Earth dist.	3887 Feb 03 07:03	14°♏04'54	28.93062 AU	direct	3894 May 08 06:34	28°♏17'29	
direct	3887 Apr 22 17:00	12°♏40'09			3894 Jul 30 21:46	0°♐	
	3887 Aug 01 01:14	15°♏		conjunction	3894 Aug 22 03:13	0°♐48'40	0°-3'-7
conjunction	3887 Aug 06 02:10	15°♏11'15	0°-27'-42	minimum elong	3894 Aug 22 03:12	0°♐48'40	0°03'09
minimum elong	3887 Aug 06 02:10	15°♏11'15	0°27'43	behind sun begin	3894 Aug 21 20:38	0°♐48'05	
max. Earth dist.	3887 Aug 06 04:26	15°♏11'28	30.93591 AU	behind sun end	3894 Aug 22 09:46	0°♐49'15	
retrograde	3887 Nov 19 21:00	17°♏43'06		max. Earth dist.	3894 Aug 21 22:39	0°♐48'17	30.99331 AU
opposition	3888 Feb 05 20:21	16°♏19'09	0°-27'-45	retrograde	3894 Dec 05 03:17	3°♐19'13	
min. Earth dist.	3888 Feb 05 17:53	16°♏19'20	28.94105 AU	opposition	3895 Feb 20 21:26	1°♐55'32	0°-1'-22
	3888 Apr 06 05:47	15°♐♏		min. Earth dist.	3895 Feb 21 00:44	1°♐55'18	28.99807 AU
direct	3888 Apr 24 06:23	14°♏54'34		direct	3895 May 10 17:22	0°♐30'34	
	3888 May 12 03:28	15°♏		asc. node	3895 Jul 04 20:05	1°♐18'36	
conjunction	3888 Aug 07 16:24	17°♏25'44	0°-24'-15	conjunction	3895 Aug 24 16:49	3°♐01'46	0°00'31
minimum elong	3888 Aug 07 16:24	17°♏25'44	0°24'16	minimum elong	3895 Aug 24 16:49	3°♐01'46	0°00'31
max. Earth dist.	3888 Aug 07 18:05	17°♏25'54	30.94571 AU	behind sun begin	3895 Aug 24 10:14	3°♐01'11	
retrograde	3888 Nov 21 08:18	19°♏57'25		behind sun end	3895 Aug 24 23:24	3°♐02'21	
opposition	3889 Feb 07 07:04	18°♏33'32	0°-24'-3	max. Earth dist.	3895 Aug 24 12:45	3°♐01'26	31.00304 AU
min. Earth dist.	3889 Feb 07 06:35	18°♏33'34	28.95030 AU	retrograde	3895 Dec 07 13:28	5°♐32'10	
direct	3889 Apr 26 18:46	17°♏08'55		opposition	3896 Feb 23 07:41	4°♐08'33	0°02'25
				min. Earth dist.	3896 Feb 23 12:00	4°♐08'15	29.00841 AU
conjunction	3889 Aug 10 06:26	19°♏40'06	0°-20'-46	direct	3896 May 12 05:13	2°♐43'34	
minimum elong	3889 Aug 10 06:26	19°♏40'06	0°20'47				
max. Earth dist.	3889 Aug 10 06:38	19°♏40'07	30.95449 AU	conjunction	3896 Aug 26 06:17	5°♐14'49	0°04'08
retrograde	3889 Nov 23 20:51	22°♏11'36		minimum elong	3896 Aug 26 06:16	5°♐14'49	0°04'07
opposition	3890 Feb 09 17:31	20°♏47'46	0°-20'-19	behind sun begin	3896 Aug 25 23:46	5°♐14'14	
min. Earth dist.	3890 Feb 09 17:00	20°♏47'48	28.95852 AU	behind sun end	3896 Aug 26 12:46	5°♐15'23	
direct	3890 Apr 29 07:55	19°♏23'05		max. Earth dist.	3896 Aug 26 00:35	5°♐14'19	31.01408 AU
				retrograde	3896 Dec 09 02:39	7°♐45'03	
conjunction	3890 Aug 12 20:24	21°♏54'17	0°-17'-16	opposition	3897 Feb 24 17:53	6°♐21'32	0°06'13
minimum elong	3890 Aug 12 20:25	21°♏54'17	0°17'17	min. Earth dist.	3897 Feb 24 22:01	6°♐21'14	29.01997 AU
max. Earth dist.	3890 Aug 12 19:24	21°♏54'12	30.96232 AU	direct	3897 May 14 18:04	4°♐56'33	
retrograde	3890 Nov 26 08:06	24°♏25'36					
opposition	3891 Feb 12 04:05	23°♏01'47	0°-16'-33	conjunction	3897 Aug 28 19:41	7°♐27'52	0°07'40
min. Earth dist.	3891 Feb 12 05:22	23°♏01'42	28.96613 AU	minimum elong	3897 Aug 28 19:42	7°♐27'52	0°07'40
direct	3891 May 01 18:53	21°♏37'03		behind sun begin	3897 Aug 28 13:45	7°♐27'20	

behind sun end	3897 Aug 29 01:38	7° $\overline{11}$ 28'23		conjunction	3905 Sep 17 05:33	25° $\overline{11}$ 11'47	0°35'07
max. Earth dist.	3897 Aug 28 14:09	7° $\overline{11}$ 27'22	31.02599 AU	minimum elong	3905 Sep 17 05:32	25° $\overline{11}$ 11'47	0°35'08
retrograde	3897 Dec 11 13:20	9° $\overline{11}$ 57'59		max. Earth dist.	3905 Sep 16 15:59	25° $\overline{11}$ 10'32	31.10437 AU
opposition	3898 Feb 27 04:15	8° $\overline{11}$ 34'34	0°10'01	retrograde	3905 Dec 30 04:25	27° $\overline{11}$ 40'44	
min. Earth dist.	3898 Feb 27 09:59	8° $\overline{11}$ 34'09	29.03219 AU	opposition	3906 Mar 17 14:24	26° $\overline{11}$ 17'46	0°39'14
direct	3898 May 17 05:54	7° $\overline{11}$ 09'37		min. Earth dist.	3906 Mar 18 01:35	26° $\overline{11}$ 16'59	29.10858 AU
				direct	3906 Jun 05 04:30	24° $\overline{11}$ 52'40	
conjunction	3898 Aug 31 09:05	9° $\overline{11}$ 40'59	0°11'12				
minimum elong	3898 Aug 31 09:05	9° $\overline{11}$ 40'59	0°11'11	conjunction	3906 Sep 19 18:20	27° $\overline{11}$ 24'05	0°38'22
behind sun begin	3898 Aug 31 04:16	9° $\overline{11}$ 40'33		minimum elong	3906 Sep 19 18:20	27° $\overline{11}$ 24'05	0°38'21
behind sun end	3898 Aug 31 13:53	9° $\overline{11}$ 41'24		max. Earth dist.	3906 Sep 19 05:06	27° $\overline{11}$ 22'51	31.11255 AU
max. Earth dist.	3898 Aug 31 02:22	9° $\overline{11}$ 40'23	31.03840 AU	retrograde	3907 Jan 01 13:55	29° $\overline{11}$ 52'52	
retrograde	3898 Dec 14 02:02	12° $\overline{11}$ 10'59		opposition	3907 Mar 20 00:35	28° $\overline{11}$ 29'55	0°42'40
opposition	3899 Mar 01 14:24	10° $\overline{11}$ 47'40	0°13'48	min. Earth dist.	3907 Mar 20 13:10	28° $\overline{11}$ 29'02	29.11729 AU
min. Earth dist.	3899 Mar 01 19:57	10° $\overline{11}$ 47'16	29.04452 AU	direct	3907 Jun 07 16:06	27° $\overline{11}$ 04'47	
direct	3899 May 19 18:35	9° $\overline{11}$ 22'45					
conjunction	3899 Sep 02 22:30	11° $\overline{11}$ 54'10	0°14'43	conjunction	3907 Sep 22 06:56	29° $\overline{11}$ 36'10	0°41'33
minimum elong	3899 Sep 02 22:30	11° $\overline{11}$ 54'10	0°14'43	minimum elong	3907 Sep 22 06:56	29° $\overline{11}$ 36'10	0°41'33
behind sun begin	3899 Sep 02 20:03	11° $\overline{11}$ 53'57		max. Earth dist.	3907 Sep 21 16:53	29° $\overline{11}$ 34'52	31.12182 AU
behind sun end	3899 Sep 03 00:57	11° $\overline{11}$ 54'23			3907 Oct 03 00:51	0° $\overline{11}$	
max. Earth dist.	3899 Sep 02 14:47	11° $\overline{11}$ 53'28	31.05041 AU	retrograde	3908 Jan 04 01:53	2° $\overline{11}$ 04'48	
retrograde	3899 Dec 16 13:41	14° $\overline{11}$ 24'03		opposition	3908 Mar 21 10:44	0° $\overline{11}$ 41'54	0°46'02
opposition	3900 Mar 04 00:50	13° $\overline{11}$ 00'49	0°17'33	min. Earth dist.	3908 Mar 21 22:35	0° $\overline{11}$ 41'04	29.12710 AU
min. Earth dist.	3900 Mar 04 08:12	13° $\overline{11}$ 00'18	29.05623 AU		3908 Apr 16 11:30	30° $\overline{11}$	
direct	3900 May 22 05:37	11° $\overline{11}$ 35'55		direct	3908 Jun 09 05:15	29° $\overline{11}$ 16'45	
					3908 Jul 31 16:57	0° $\overline{11}$	
conjunction	3900 Sep 05 12:01	14° $\overline{11}$ 07'23	0°18'12	conjunction	3908 Sep 23 19:32	1° $\overline{11}$ 48'08	0°44'40
minimum elong	3900 Sep 05 12:01	14° $\overline{11}$ 07'23	0°18'12	minimum elong	3908 Sep 23 19:32	1° $\overline{11}$ 48'08	0°44'39
max. Earth dist.	3900 Sep 05 03:33	14° $\overline{11}$ 06'37	31.06162 AU	max. Earth dist.	3908 Sep 23 05:08	1° $\overline{11}$ 46'48	31.13216 AU
retrograde	3900 Dec 19 01:10	16° $\overline{11}$ 37'07		retrograde	3909 Jan 05 13:10	4° $\overline{11}$ 16'37	
opposition	3901 Mar 06 11:06	15° $\overline{11}$ 13'59	0°21'16	opposition	3909 Mar 23 20:58	2° $\overline{11}$ 53'47	0°49'20
min. Earth dist.	3901 Mar 06 18:42	15° $\overline{11}$ 13'27	29.06683 AU	min. Earth dist.	3909 Mar 24 10:00	2° $\overline{11}$ 52'52	29.13816 AU
direct	3901 May 24 18:04	13° $\overline{11}$ 49'05		direct	3909 Jun 11 16:57	1° $\overline{11}$ 28'39	
conjunction	3901 Sep 08 01:22	16° $\overline{11}$ 20'34	0°21'40	conjunction	3909 Sep 26 08:02	4° $\overline{11}$ 00'02	0°47'43
minimum elong	3901 Sep 08 01:21	16° $\overline{11}$ 20'34	0°21'41	minimum elong	3909 Sep 26 08:02	4° $\overline{11}$ 00'02	0°47'44
max. Earth dist.	3901 Sep 07 15:08	16° $\overline{11}$ 19'37	31.07164 AU	max. Earth dist.	3909 Sep 25 17:36	3° $\overline{11}$ 58'42	31.14380 AU
retrograde	3901 Dec 21 11:09	18° $\overline{11}$ 50'10		retrograde	3910 Jan 08 00:01	6° $\overline{11}$ 28'24	
opposition	3902 Mar 08 21:32	17° $\overline{11}$ 27'05	0°24'58	opposition	3910 Mar 26 07:11	5° $\overline{11}$ 05'39	0°52'33
min. Earth dist.	3902 Mar 09 06:29	17° $\overline{11}$ 26'27	29.07644 AU	min. Earth dist.	3910 Mar 26 19:54	5° $\overline{11}$ 04'45	29.15016 AU
direct	3902 May 27 04:48	16° $\overline{11}$ 02'09		direct	3910 Jun 14 05:59	3° $\overline{11}$ 40'33	
conjunction	3902 Sep 10 14:34	18° $\overline{11}$ 33'38	0°25'06	conjunction	3910 Sep 28 20:19	6° $\overline{11}$ 11'56	0°50'42
minimum elong	3902 Sep 10 14:34	18° $\overline{11}$ 33'38	0°25'05	minimum elong	3910 Sep 28 20:19	6° $\overline{11}$ 11'56	0°50'41
max. Earth dist.	3902 Sep 10 04:23	18° $\overline{11}$ 32'42	31.08071 AU	max. Earth dist.	3910 Sep 28 04:48	6° $\overline{11}$ 10'30	31.15607 AU
retrograde	3902 Dec 23 20:22	21° $\overline{11}$ 03'05		retrograde	3911 Jan 10 10:14	8° $\overline{11}$ 40'12	
opposition	3903 Mar 11 07:51	19° $\overline{11}$ 40'03	0°28'36	opposition	3911 Mar 28 17:28	7° $\overline{11}$ 17'32	0°55'42
min. Earth dist.	3903 Mar 11 17:33	19° $\overline{11}$ 39'22	29.08498 AU	min. Earth dist.	3911 Mar 29 07:08	7° $\overline{11}$ 16'35	29.16264 AU
direct	3903 May 29 17:02	18° $\overline{11}$ 15'05		direct	3911 Jun 16 16:19	5° $\overline{11}$ 52'28	
conjunction	3903 Sep 13 03:41	20° $\overline{11}$ 46'34	0°28'29	conjunction	3911 Oct 01 08:50	8° $\overline{11}$ 23'53	0°53'36
minimum elong	3903 Sep 13 03:40	20° $\overline{11}$ 46'34	0°28'30	minimum elong	3911 Oct 01 08:50	8° $\overline{11}$ 23'53	0°53'37
max. Earth dist.	3903 Sep 12 15:27	20° $\overline{11}$ 45'26	31.08891 AU	max. Earth dist.	3911 Sep 30 17:40	8° $\overline{11}$ 22'29	31.16839 AU
retrograde	3903 Dec 26 07:44	23° $\overline{11}$ 15'50		retrograde	3912 Jan 12 19:36	10° $\overline{11}$ 52'02	
opposition	3904 Mar 12 17:58	21° $\overline{11}$ 52'50	0°32'12	opposition	3912 Mar 30 03:41	9° $\overline{11}$ 29'27	0°58'46
min. Earth dist.	3904 Mar 13 04:12	21° $\overline{11}$ 52'07	29.09297 AU	min. Earth dist.	3912 Mar 30 18:03	9° $\overline{11}$ 28'27	29.17466 AU
direct	3904 May 31 03:16	20° $\overline{11}$ 27'49		direct	3912 Jun 18 04:22	8° $\overline{11}$ 04'25	
conjunction	3904 Sep 14 16:51	22° $\overline{11}$ 59'17	0°31'50	conjunction	3912 Oct 02 21:12	10° $\overline{11}$ 35'50	0°56'26
minimum elong	3904 Sep 14 16:51	22° $\overline{11}$ 59'17	0°31'49	minimum elong	3912 Oct 02 21:12	10° $\overline{11}$ 35'50	0°56'25
max. Earth dist.	3904 Sep 14 04:52	22° $\overline{11}$ 58'11	31.09664 AU	max. Earth dist.	3912 Oct 02 04:12	10° $\overline{11}$ 34'16	31.18002 AU
retrograde	3904 Dec 27 16:41	25° $\overline{11}$ 28'24		retrograde	3913 Jan 14 06:56	13° $\overline{11}$ 03'53	
opposition	3905 Mar 15 04:16	24° $\overline{11}$ 05'25	0°35'45	opposition	3913 Apr 01 14:06	11° $\overline{11}$ 41'23	1°01'45
min. Earth dist.	3905 Mar 15 15:45	24° $\overline{11}$ 04'37	29.10061 AU	min. Earth dist.	3913 Apr 02 04:46	11° $\overline{11}$ 40'21	29.18594 AU
direct	3905 Jun 02 15:23	22° $\overline{11}$ 40'22		direct	3913 Jun 20 14:29	10° $\overline{11}$ 16'21	

conjunction	3913 Oct 05 09:31	12° 4 47'46	0°59'11	conjunction	3921 Oct 23 08:02	0° M 19'02	1°17'40
minimum elong	3913 Oct 05 09:30	12° 4 47'45	0°59'11	minimum elong	3921 Oct 23 08:01	0° M 19'01	1°17'41
max. Earth dist.	3913 Oct 04 16:51	12° 4 46'13	31.19062 AU	retrograde	3922 Feb 03 02:28	2° M 46'08	
retrograde	3914 Jan 16 15:25	15° 4 15'42		opposition	3922 Apr 21 12:08	1° M 23'57	1°23'57
opposition	3914 Apr 04 00:37	13° 4 53'15	1°04'38	min. Earth dist.	3922 Apr 22 06:03	1° M 22'43	29.25819 AU
min. Earth dist.	3914 Apr 04 16:35	13° 4 52'08	29.19596 AU		3922 Jul 03 01:30	30° R 4	
direct	3914 Jun 23 02:22	12° 4 28'15		direct	3922 Jul 11 01:54	29° 4 58'58	
					3922 Jul 19 00:52	0° M	
conjunction	3914 Oct 07 21:41	14° 4 59'37	1°01'50	conjunction	3922 Oct 25 19:30	2° M 30'07	1°19'30
minimum elong	3914 Oct 07 21:41	14° 4 59'37	1°01'49	minimum elong	3922 Oct 25 19:30	2° M 30'07	1°19'30
max. Earth dist.	3914 Oct 07 03:15	14° 4 57'55	31.20007 AU	max. Earth dist.	3922 Oct 24 23:49	2° M 28'17	31.26227 AU
retrograde	3915 Jan 19 02:40	17° 4 27'27		retrograde	3923 Feb 05 10:19	4° M 57'10	
opposition	3915 Apr 06 10:54	16° 4 05'02	1°07'25	opposition	3923 Apr 23 22:39	3° M 35'04	1°25'50
min. Earth dist.	3915 Apr 07 02:44	16° 4 03'56	29.20487 AU	min. Earth dist.	3923 Apr 24 17:31	3° M 33'46	29.26791 AU
direct	3915 Jun 25 14:25	14° 4 40'02		direct	3923 Jul 13 13:17	2° M 10'09	
				max. Earth dist.	3923 Oct 27 09:55	4° M 39'20	31.27202 AU
conjunction	3915 Oct 10 09:59	17° 4 11'23	1°04'24	conjunction	3923 Oct 28 06:50	4° M 41'17	1°21'13
minimum elong	3915 Oct 10 09:59	17° 4 11'23	1°04'25	minimum elong	3923 Oct 28 06:50	4° M 41'17	1°21'14
max. Earth dist.	3915 Oct 09 15:36	17° 4 09'41	31.20831 AU	retrograde	3924 Feb 07 21:13	7° M 08'18	
retrograde	3916 Jan 21 12:03	19° 4 39'06		opposition	3924 Apr 25 09:14	5° M 46'16	1°27'37
opposition	3916 Apr 07 21:26	18° 4 16'43	1°10'06	min. Earth dist.	3924 Apr 26 03:33	5° M 45'00	29.27748 AU
min. Earth dist.	3916 Apr 08 14:55	18° 4 15'30	29.21262 AU	direct	3924 Jul 15 00:10	4° M 21'24	
direct	3916 Jun 27 01:41	16° 4 51'41					
				conjunction	3924 Oct 29 18:12	6° M 52'31	1°22'49
conjunction	3916 Oct 11 21:58	19° 4 23'00	1°06'52	minimum elong	3924 Oct 29 18:12	6° M 52'31	1°22'49
minimum elong	3916 Oct 11 21:58	19° 4 23'00	1°06'52	max. Earth dist.	3924 Oct 28 21:44	6° M 50'37	31.28112 AU
max. Earth dist.	3916 Oct 11 02:37	19° 4 21'13	31.21563 AU	retrograde	3925 Feb 09 06:36	9° M 19'31	
retrograde	3917 Jan 22 23:27	21° 4 50'36		opposition	3925 Apr 27 20:06	7° M 57'32	1°29'15
opposition	3917 Apr 10 07:47	20° 4 28'14	1°12'41	min. Earth dist.	3925 Apr 28 15:49	7° M 56'10	29.28620 AU
min. Earth dist.	3917 Apr 11 00:46	20° 4 27'03	29.21956 AU	direct	3925 Jul 17 10:01	6° M 32'42	
direct	3917 Jun 29 15:06	19° 4 03'12		max. Earth dist.	3925 Oct 31 08:15	9° M 01'50	31.28930 AU
				conjunction	3925 Nov 01 05:27	9° M 03'48	1°24'18
conjunction	3917 Oct 14 09:54	21° 4 34'28	1°09'14	minimum elong	3925 Nov 01 05:27	9° M 03'48	1°24'18
minimum elong	3917 Oct 14 09:54	21° 4 34'28	1°09'15	retrograde	3926 Feb 11 17:54	11° M 30'44	
max. Earth dist.	3917 Oct 13 14:08	21° 4 32'39	31.22227 AU	opposition	3926 Apr 30 06:49	10° M 08'48	1°30'46
retrograde	3918 Jan 25 10:27	24° 4 01'57		min. Earth dist.	3926 May 01 01:56	10° M 07'29	29.29373 AU
opposition	3918 Apr 12 18:17	22° 4 39'36	1°15'10	direct	3926 Jul 19 23:20	8° M 44'00	
min. Earth dist.	3918 Apr 13 12:28	22° 4 38'20	29.22625 AU				
direct	3918 Jul 02 03:07	21° 4 14'33		conjunction	3926 Nov 03 16:39	11° M 15'04	1°25'39
				minimum elong	3926 Nov 03 16:38	11° M 15'04	1°25'39
conjunction	3918 Oct 16 21:33	23° 4 45'46	1°11'30	max. Earth dist.	3926 Nov 02 18:59	11° M 13'03	31.29602 AU
minimum elong	3918 Oct 16 21:33	23° 4 45'46	1°11'30	retrograde	3927 Feb 14 05:08	13° M 41'57	
max. Earth dist.	3918 Oct 16 01:52	23° 4 43'57	31.22896 AU	opposition	3927 May 02 17:44	12° M 20'01	1°32'09
retrograde	3919 Jan 27 20:35	26° 4 13'08		min. Earth dist.	3927 May 03 14:04	12° M 18'37	29.29981 AU
opposition	3919 Apr 15 04:40	24° 4 50'48	1°17'32	direct	3927 Jul 22 11:12	10° M 55'14	
min. Earth dist.	3919 Apr 15 22:29	24° 4 49'34	29.23299 AU	max. Earth dist.	3927 Nov 05 06:07	13° M 24'14	31.30134 AU
direct	3919 Jul 04 16:49	23° 4 25'44					
				conjunction	3927 Nov 06 03:51	13° M 26'15	1°26'53
conjunction	3919 Oct 19 09:10	25° 4 56'56	1°13'40	minimum elong	3927 Nov 06 03:51	13° M 26'15	1°26'53
minimum elong	3919 Oct 19 09:10	25° 4 56'56	1°13'40	max. Earth dist.	3927 Dec 21 12:13	15° M	
max. Earth dist.	3919 Oct 18 12:38	25° 4 55'01	31.23592 AU	retrograde	3928 Feb 16 15:07	15° M 53'03	
retrograde	3920 Jan 30 06:27	28° 4 24'11			3928 Apr 16 07:50	15° R M	
opposition	3920 Apr 16 15:04	27° 4 01'53	1°19'47	opposition	3928 May 04 04:32	14° M 31'08	1°33'24
min. Earth dist.	3920 Apr 17 09:21	27° 4 00'37	29.24048 AU	min. Earth dist.	3928 May 05 00:42	14° M 29'45	29.30430 AU
direct	3920 Jul 06 03:30	25° 4 36'49		direct	3928 Jul 24 00:55	13° M 06'21	
					3928 Oct 21 17:52	15° M	
conjunction	3920 Oct 20 20:48	28° 4 07'59	1°15'43	conjunction	3928 Nov 07 14:52	15° M 37'18	1°27'59
minimum elong	3920 Oct 20 20:47	28° 4 07'59	1°15'43	minimum elong	3928 Nov 07 14:52	15° M 37'18	1°27'59
max. Earth dist.	3920 Oct 20 01:12	28° 4 06'10	31.24381 AU	max. Earth dist.	3928 Nov 06 16:05	15° M 35'11	31.30514 AU
	3920 Dec 16 16:09	0° M		retrograde	3929 Feb 18 01:43	18° M 04'02	
retrograde	3921 Jan 31 15:24	0° M 35'09		opposition	3929 May 06 15:29	16° M 42'06	1°34'31
	3921 Mar 19 22:36	30° R 4		min. Earth dist.	3929 May 07 12:11	16° M 40'41	29.30762 AU
opposition	3921 Apr 19 01:38	29° 4 12'55	1°21'56	direct	3929 Jul 26 12:12	15° M 17'18	
min. Earth dist.	3921 Apr 19 19:57	29° 4 11'38	29.24882 AU				
direct	3921 Jul 08 15:55	27° 4 47'53					
	3921 Oct 14 18:44	0° M					
max. Earth dist.	3921 Oct 22 11:22	0° M 17'07	31.25267 AU				

max. Earth dist.	3929 Nov 09 03:49	17° M 46'07	31.30791 AU	conjunction	3937 Nov 27 13:00	5° Δ 11'09	1°32'10
				minimum elong	3937 Nov 27 13:00	5° Δ 11'09	1°32'10
conjunction	3929 Nov 10 01:42	17° M 48'09	1°28'58	max. Earth dist.	3937 Nov 26 15:49	5° Δ 09'10	31.33491 AU
minimum elong	3929 Nov 10 01:42	17° M 48'09	1°28'59	retrograde	3938 Mar 09 19:40	7° Δ 37'43	
retrograde	3930 Feb 20 10:48	20° M 14'49		opposition	3938 May 26 18:55	6° Δ 15'53	1°38'21
opposition	3930 May 09 02:27	18° M 52'52	1°35'30	min. Earth dist.	3938 May 27 14:28	6° Δ 14'33	29.33750 AU
min. Earth dist.	3930 May 09 23:25	18° M 51'25	29.30989 AU	direct	3938 Aug 15 20:34	4° Δ 51'20	
direct	3930 Jul 29 02:02	17° M 28'02					
				conjunction	3938 Nov 29 23:20	7° Δ 21'47	1°31'58
conjunction	3930 Nov 12 12:23	19° M 58'49	1°29'49	minimum elong	3938 Nov 29 23:20	7° Δ 21'47	1°31'57
minimum elong	3930 Nov 12 12:23	19° M 58'49	1°29'49	max. Earth dist.	3938 Nov 29 03:12	7° Δ 19'54	31.33774 AU
max. Earth dist.	3930 Nov 11 13:24	19° M 56'40	31.30994 AU	retrograde	3939 Mar 12 05:29	9° Δ 48'22	
retrograde	3931 Feb 22 21:18	22° M 25'23		opposition	3939 May 29 06:12	8° Δ 26'34	1°38'04
opposition	3931 May 11 13:10	21° M 03'25	1°36'21	min. Earth dist.	3939 May 30 02:01	8° Δ 25'13	29.33958 AU
min. Earth dist.	3931 May 12 09:41	21° M 02'00	29.31187 AU	direct	3939 Aug 18 10:19	7° Δ 02'03	
direct	3931 Jul 31 13:15	19° M 38'33					
				conjunction	3939 Dec 02 09:32	9° Δ 32'28	1°31'38
conjunction	3931 Nov 14 23:07	22° M 09'15	1°30'33	minimum elong	3939 Dec 02 09:32	9° Δ 32'28	1°31'39
minimum elong	3931 Nov 14 23:07	22° M 09'15	1°30'34	max. Earth dist.	3939 Dec 01 12:17	9° Δ 30'29	31.33918 AU
max. Earth dist.	3931 Nov 14 01:18	22° M 07'13	31.31186 AU	retrograde	3940 Mar 13 16:52	11° Δ 59'04	
retrograde	3932 Feb 25 04:45	24° M 35'46		opposition	3940 May 30 17:39	10° Δ 37'16	1°37'39
opposition	3932 May 13 00:14	23° M 13'46	1°37'03	min. Earth dist.	3940 May 31 12:54	10° Δ 35'57	29.34036 AU
min. Earth dist.	3932 May 13 21:19	23° M 12'19	29.31396 AU	direct	3940 Aug 19 21:43	9° Δ 12'47	
direct	3932 Aug 02 01:16	21° M 48'55					
max. Earth dist.	3932 Nov 15 11:04	24° M 17'26	31.31431 AU	conjunction	3940 Dec 03 19:41	11° Δ 43'08	1°31'11
				minimum elong	3940 Dec 03 19:41	11° Δ 43'08	1°31'11
conjunction	3932 Nov 16 09:29	24° M 19'31	1°31'09	max. Earth dist.	3940 Dec 02 23:29	11° Δ 41'15	31.33918 AU
minimum elong	3932 Nov 16 09:28	24° M 19'31	1°31'09	retrograde	3941 Mar 16 00:30	14° Δ 09'45	
retrograde	3933 Feb 26 14:54	26° M 46'00		opposition	3941 Jun 02 05:16	12° Δ 47'56	1°37'06
opposition	3933 May 15 11:11	25° M 24'00	1°37'37	min. Earth dist.	3941 Jun 03 01:14	12° Δ 46'34	29.33966 AU
min. Earth dist.	3933 May 16 07:00	25° M 22'38	29.31684 AU	direct	3941 Aug 22 09:59	11° Δ 23'28	
direct	3933 Aug 04 12:11	23° M 59'09		max. Earth dist.	3941 Dec 05 08:46	13° Δ 51'47	31.33796 AU
conjunction	3933 Nov 18 19:58	26° M 29'43	1°31'37	conjunction	3941 Dec 06 05:41	13° Δ 53'44	1°30'36
minimum elong	3933 Nov 18 19:58	26° M 29'43	1°31'38	minimum elong	3941 Dec 06 05:41	13° Δ 53'44	1°30'37
max. Earth dist.	3933 Nov 17 22:36	26° M 27'43	31.31760 AU	retrograde	3942 Mar 18 10:40	16° Δ 20'21	
retrograde	3934 Feb 28 23:56	28° M 56'11		opposition	3942 Jun 04 16:34	14° Δ 58'30	1°36'25
opposition	3934 May 17 22:13	27° M 34'12	1°38'03	min. Earth dist.	3942 Jun 05 11:30	14° Δ 57'13	29.33787 AU
min. Earth dist.	3934 May 18 18:46	27° M 32'47	29.32067 AU	direct	3942 Aug 24 21:09	13° Δ 34'01	
direct	3934 Aug 06 21:46	26° M 09'23					
max. Earth dist.	3934 Nov 20 08:58	28° M 37'55	31.32190 AU	conjunction	3942 Dec 08 15:41	16° Δ 04'13	1°29'54
				minimum elong	3942 Dec 08 15:41	16° Δ 04'13	1°29'54
conjunction	3934 Nov 21 06:16	28° M 39'55	1°31'57	max. Earth dist.	3942 Dec 07 19:33	16° Δ 02'19	31.33570 AU
minimum elong	3934 Nov 21 06:16	28° M 39'55	1°31'57	retrograde	3943 Mar 20 19:36	18° Δ 30'50	
	3934 Dec 29 00:16	0° Δ		opposition	3943 Jun 07 04:09	17° Δ 08'56	1°35'36
retrograde	3935 Mar 03 10:43	1° Δ 06'23		min. Earth dist.	3943 Jun 07 23:53	17° Δ 07'35	29.33532 AU
	3935 May 10 20:38	30° R M		direct	3943 Aug 27 07:16	15° Δ 44'26	
opposition	3935 May 20 09:11	29° M 44'27	1°38'20	max. Earth dist.	3943 Dec 10 05:37	18° Δ 12'40	31.33307 AU
min. Earth dist.	3935 May 21 04:30	29° M 43'07	29.32513 AU				
direct	3935 Aug 09 10:21	28° M 19'41		conjunction	3943 Dec 11 01:25	18° Δ 14'31	1°29'04
	3935 Oct 31 19:37	0° Δ		minimum elong	3943 Dec 11 01:25	18° Δ 14'31	1°29'04
				retrograde	3944 Mar 22 05:24	20° Δ 41'08	
conjunction	3935 Nov 23 16:35	0° Δ 50'12	1°32'09	opposition	3944 Jun 08 15:35	19° Δ 19'11	1°34'39
minimum elong	3935 Nov 23 16:35	0° Δ 50'12	1°32'10	min. Earth dist.	3944 Jun 09 09:52	19° Δ 17'57	29.33264 AU
max. Earth dist.	3935 Nov 22 19:26	0° Δ 48'14	31.32647 AU	direct	3944 Aug 28 20:03	17° Δ 54'41	
retrograde	3936 Mar 04 22:03	3° Δ 16'42					
opposition	3936 May 21 20:20	1° Δ 54'48	1°38'29	conjunction	3944 Dec 12 11:06	20° Δ 24'41	1°28'06
min. Earth dist.	3936 May 22 16:17	1° Δ 53'26	29.32981 AU	minimum elong	3944 Dec 12 11:06	20° Δ 24'41	1°28'06
direct	3936 Aug 10 20:57	0° Δ 30'07		max. Earth dist.	3944 Dec 11 15:41	20° Δ 22'52	31.33060 AU
max. Earth dist.	3936 Nov 24 06:23	2° Δ 58'42	31.33106 AU	retrograde	3945 Mar 24 16:15	22° Δ 51'19	
				opposition	3945 Jun 11 03:15	21° Δ 29'19	1°33'33
conjunction	3936 Nov 25 02:54	3° Δ 00'37	1°32'13	min. Earth dist.	3945 Jun 11 21:35	21° Δ 28'04	29.33065 AU
minimum elong	3936 Nov 25 02:54	3° Δ 00'37	1°32'13	direct	3945 Aug 31 05:49	20° Δ 04'49	
retrograde	3937 Mar 07 08:17	5° Δ 27'09					
opposition	3937 May 24 07:36	4° Δ 05'17	1°38'29	conjunction	3945 Dec 14 20:39	22° Δ 34'44	1°27'01
min. Earth dist.	3937 May 25 02:55	4° Δ 03'58	29.33404 AU	minimum elong	3945 Dec 14 20:39	22° Δ 34'44	1°27'02
direct	3937 Aug 13 09:40	2° Δ 40'40		max. Earth dist.	3945 Dec 14 02:32	22° Δ 33'02	31.32908 AU

retrograde	3946 Mar 27 01:58	25° $\overline{2}$ 01'24		retrograde	3954 Apr 13 15:04	12° $\overline{3}$ 24'42	
opposition	3946 Jun 13 14:49	23° $\overline{2}$ 39'22	1°32'20	opposition	3954 Jul 01 14:19	11° $\overline{3}$ 02'37	1°17'56
min. Earth dist.	3946 Jun 14 07:56	23° $\overline{2}$ 38'12	29.32948 AU	min. Earth dist.	3954 Jul 02 04:29	11° $\overline{3}$ 01'39	29.31778 AU
direct	3946 Sep 02 17:59	22° $\overline{2}$ 14'54		direct	3954 Sep 20 13:01	9° $\overline{3}$ 38'33	
max. Earth dist.	3946 Dec 16 11:53	24° $\overline{2}$ 43'02	31.32845 AU				
conjunction	3946 Dec 17 06:11	24° $\overline{2}$ 44'45	1°25'49	conjunction	3955 Jan 03 10:41	12° $\overline{3}$ 08'00	1°11'53
minimum elong	3946 Dec 17 06:11	24° $\overline{2}$ 44'45	1°25'48	minimum elong	3955 Jan 03 10:41	12° $\overline{3}$ 08'00	1°11'52
retrograde	3947 Mar 29 13:43	27° $\overline{2}$ 11'29		max. Earth dist.	3955 Jan 02 20:53	12° $\overline{3}$ 06'42	31.31412 AU
opposition	3947 Jun 16 02:21	25° $\overline{2}$ 49'26	1°30'59	retrograde	3955 Apr 16 01:03	14° $\overline{3}$ 35'22	
min. Earth dist.	3947 Jun 16 19:01	25° $\overline{2}$ 48'18	29.32932 AU	opposition	3955 Jul 04 02:24	13° $\overline{3}$ 13'14	1°15'36
direct	3947 Sep 05 04:52	24° $\overline{2}$ 25'01		min. Earth dist.	3955 Jul 04 15:40	13° $\overline{3}$ 12'20	29.31131 AU
				direct	3955 Sep 23 01:14	11° $\overline{3}$ 49'10	
conjunction	3947 Dec 19 15:51	26° $\overline{2}$ 54'49	1°24'29	conjunction	3956 Jan 05 20:04	14° $\overline{3}$ 18'32	1°09'39
minimum elong	3947 Dec 19 15:51	26° $\overline{2}$ 54'49	1°24'30	minimum elong	3956 Jan 05 20:04	14° $\overline{3}$ 18'32	1°09'39
max. Earth dist.	3947 Dec 18 23:19	26° $\overline{2}$ 53'17	31.32865 AU	max. Earth dist.	3956 Jan 05 05:56	14° $\overline{3}$ 17'13	31.30737 AU
retrograde	3948 Mar 31 00:05	29° $\overline{2}$ 21'36		retrograde	3956 Apr 17 13:20	16° $\overline{3}$ 46'00	
opposition	3948 Jun 17 14:10	27° $\overline{2}$ 59'35	1°29'29	opposition	3956 Jul 05 14:41	15° $\overline{3}$ 23'46	1°13'10
min. Earth dist.	3948 Jun 18 06:28	27° $\overline{2}$ 58'28	29.32962 AU	min. Earth dist.	3956 Jul 06 03:27	15° $\overline{3}$ 22'54	29.30440 AU
direct	3948 Sep 06 18:11	26° $\overline{2}$ 35'13		direct	3956 Sep 24 12:17	13° $\overline{3}$ 59'43	
max. Earth dist.	3948 Dec 20 08:16	29° $\overline{2}$ 03'24	31.32915 AU				
conjunction	3948 Dec 21 01:11	29° $\overline{2}$ 04'59	1°23'02	conjunction	3957 Jan 07 05:22	16° $\overline{3}$ 29'01	1°07'19
minimum elong	3948 Dec 21 01:11	29° $\overline{2}$ 04'59	1°23'02	minimum elong	3957 Jan 07 05:22	16° $\overline{3}$ 29'01	1°07'19
	3949 Jan 15 01:18	0° $\overline{3}$		max. Earth dist.	3957 Jan 06 17:11	16° $\overline{3}$ 27'52	31.30041 AU
retrograde	3949 Apr 02 11:47	1° $\overline{3}$ 31'52		retrograde	3957 Apr 20 00:01	18° $\overline{3}$ 56'33	
opposition	3949 Jun 20 01:59	0° $\overline{3}$ 09'50	1°27'52	opposition	3957 Jul 08 03:00	17° $\overline{3}$ 34'15	1°10'38
min. Earth dist.	3949 Jun 20 17:09	0° $\overline{3}$ 08'48	29.33009 AU	min. Earth dist.	3957 Jul 08 15:12	17° $\overline{3}$ 33'26	29.29750 AU
	3949 Jun 26 03:29	30° \overline{R} $\overline{2}$		direct	3957 Sep 27 01:36	16° $\overline{3}$ 10'12	
direct	3949 Sep 09 05:04	28° $\overline{2}$ 45'33		conjunction	3958 Jan 09 14:36	18° $\overline{3}$ 39'26	1°04'54
	3949 Nov 18 09:28	0° $\overline{3}$		minimum elong	3958 Jan 09 14:36	18° $\overline{3}$ 39'26	1°04'54
conjunction	3949 Dec 23 10:51	1° $\overline{3}$ 15'17	1°21'27	max. Earth dist.	3958 Jan 09 02:16	18° $\overline{3}$ 38'17	31.29388 AU
minimum elong	3949 Dec 23 10:51	1° $\overline{3}$ 15'17	1°21'28	retrograde	3958 Apr 22 11:53	21° $\overline{3}$ 07'04	
max. Earth dist.	3949 Dec 22 19:20	1° $\overline{3}$ 13'50	31.32940 AU	opposition	3958 Jul 10 15:02	19° $\overline{3}$ 44'43	1°08'00
retrograde	3950 Apr 04 20:36	3° $\overline{3}$ 42'14		min. Earth dist.	3958 Jul 11 01:45	19° $\overline{3}$ 44'00	29.29137 AU
opposition	3950 Jun 22 13:51	2° $\overline{3}$ 20'13	1°26'07	direct	3958 Sep 29 12:13	18° $\overline{3}$ 20'42	
min. Earth dist.	3950 Jun 23 05:30	2° $\overline{3}$ 19'09	29.33002 AU	conjunction	3959 Jan 11 23:59	20° $\overline{3}$ 49'53	1°02'23
direct	3950 Sep 11 17:13	0° $\overline{3}$ 56'00		minimum elong	3959 Jan 11 23:59	20° $\overline{3}$ 49'53	1°02'23
conjunction	3950 Dec 25 20:23	3° $\overline{3}$ 25'41	1°19'46	max. Earth dist.	3959 Jan 11 13:21	20° $\overline{3}$ 48'53	31.28811 AU
minimum elong	3950 Dec 25 20:23	3° $\overline{3}$ 25'41	1°19'45	retrograde	3959 Apr 24 21:09	23° $\overline{3}$ 17'37	
max. Earth dist.	3950 Dec 25 04:30	3° $\overline{3}$ 24'12	31.32900 AU	opposition	3959 Jul 13 03:25	21° $\overline{3}$ 55'15	1°05'16
retrograde	3951 Apr 07 07:44	5° $\overline{3}$ 52'43		min. Earth dist.	3959 Jul 13 14:01	21° $\overline{3}$ 54'32	29.28597 AU
opposition	3951 Jun 25 01:46	4° $\overline{3}$ 30'43	1°24'15	direct	3959 Oct 02 00:52	20° $\overline{3}$ 31'17	
min. Earth dist.	3951 Jun 25 16:08	4° $\overline{3}$ 29'45	29.32902 AU	conjunction	3960 Jan 14 09:08	23° $\overline{3}$ 00'25	0°59'46
direct	3951 Sep 14 04:46	3° $\overline{3}$ 06'33		minimum elong	3960 Jan 14 09:08	23° $\overline{3}$ 00'25	0°59'47
conjunction	3951 Dec 28 06:00	5° $\overline{3}$ 36'12	1°17'57	max. Earth dist.	3960 Jan 13 22:50	22° $\overline{3}$ 59'27	31.28321 AU
minimum elong	3951 Dec 28 06:00	5° $\overline{3}$ 36'12	1°17'58	retrograde	3960 Apr 26 08:55	25° $\overline{3}$ 28'17	
max. Earth dist.	3951 Dec 27 14:53	5° $\overline{3}$ 34'47	31.32732 AU	opposition	3960 Jul 14 15:43	24° $\overline{3}$ 05'53	1°02'25
retrograde	3952 Apr 08 17:27	8° $\overline{3}$ 03'20		min. Earth dist.	3960 Jul 15 00:24	24° $\overline{3}$ 05'18	29.28130 AU
opposition	3952 Jun 26 14:00	6° $\overline{3}$ 41'19	1°22'16	direct	3960 Oct 03 12:51	22° $\overline{3}$ 41'59	
min. Earth dist.	3952 Jun 27 05:05	6° $\overline{3}$ 40'17	29.32671 AU	conjunction	3961 Jan 15 18:25	25° $\overline{3}$ 11'06	0°57'04
direct	3952 Sep 15 15:15	5° $\overline{3}$ 17'12		minimum elong	3961 Jan 15 18:25	25° $\overline{3}$ 11'06	0°57'04
conjunction	3952 Dec 29 15:36	7° $\overline{3}$ 46'47	1°16'02	max. Earth dist.	3961 Jan 15 09:16	25° $\overline{3}$ 10'14	31.27876 AU
minimum elong	3952 Dec 29 15:36	7° $\overline{3}$ 46'47	1°16'02	retrograde	3961 Apr 28 19:00	27° $\overline{3}$ 39'06	
max. Earth dist.	3952 Dec 29 00:49	7° $\overline{3}$ 45'24	31.32439 AU	opposition	3961 Jul 17 04:10	26° $\overline{3}$ 16'42	0°59'30
retrograde	3953 Apr 11 03:48	10° $\overline{3}$ 14'00		min. Earth dist.	3961 Jul 17 13:10	26° $\overline{3}$ 16'05	29.27699 AU
opposition	3953 Jun 29 02:05	8° $\overline{3}$ 51'57	1°20'09	direct	3961 Oct 05 23:21	24° $\overline{3}$ 52'52	
min. Earth dist.	3953 Jun 29 15:52	8° $\overline{3}$ 51'01	29.32296 AU	conjunction	3962 Jan 18 03:41	27° $\overline{3}$ 21'56	0°54'17
direct	3953 Sep 18 03:25	7° $\overline{3}$ 27'52		minimum elong	3962 Jan 18 03:41	27° $\overline{3}$ 21'56	0°54'18
max. Earth dist.	3953 Dec 31 10:15	9° $\overline{3}$ 56'00	31.31990 AU	max. Earth dist.	3962 Jan 17 19:28	27° $\overline{3}$ 21'10	31.27451 AU
conjunction	3954 Jan 01 01:06	9° $\overline{3}$ 57'24	1°14'00	retrograde	3962 May 01 05:07	29° $\overline{3}$ 50'05	
minimum elong	3954 Jan 01 01:06	9° $\overline{3}$ 57'24	1°14'01	opposition	3962 Jul 19 16:35	28° $\overline{3}$ 27'40	0°56'28
				min. Earth dist.	3962 Jul 19 23:56	28° $\overline{3}$ 27'10	29.27245 AU

direct	3962 Oct 08 11:07	27° $\overline{3}$ 03'54		retrograde	3970 May 19 01:00	17° \approx 20'27	
				opposition	3970 Aug 06 22:28	15° \approx 57'26	0°29'46
conjunction	3963 Jan 20 13:00	29° $\overline{3}$ 32'56	0°51'25	min. Earth dist.	3970 Aug 07 01:33	15° \approx 57'13	29.20007 AU
minimum elong	3963 Jan 20 13:00	29° $\overline{3}$ 32'56	0°51'25		3970 Sep 14 19:33	15° \approx	
max. Earth dist.	3963 Jan 20 04:53	29° $\overline{3}$ 32'11	31.26968 AU	direct	3970 Oct 26 06:51	14° \approx 33'45	
	3963 Feb 01 13:13	0° \approx			3970 Dec 05 07:08	15° \approx	
retrograde	3963 May 03 16:28	2° \approx 01'15					
opposition	3963 Jul 22 05:10	0° \approx 38'48	0°53'22	conjunction	3971 Feb 06 16:29	17° \approx 02'17	0°26'13
min. Earth dist.	3963 Jul 22 12:40	0° \approx 38'18	29.26730 AU	minimum elong	3971 Feb 06 16:29	17° \approx 02'17	0°26'12
	3963 Aug 16 02:05	30° \approx		max. Earth dist.	3971 Feb 06 14:30	17° \approx 02'06	31.19480 AU
direct	3963 Oct 10 20:06	29° $\overline{3}$ 15'05		retrograde	3971 May 21 11:14	19° \approx 31'35	
	3963 Dec 02 23:58	0° \approx		opposition	3971 Aug 09 11:08	18° \approx 08'29	0°26'12
				min. Earth dist.	3971 Aug 09 12:09	18° \approx 08'25	29.18990 AU
conjunction	3964 Jan 22 22:30	1° \approx 44'05	0°48'29	direct	3971 Oct 28 19:02	16° \approx 44'50	
minimum elong	3964 Jan 22 22:30	1° \approx 44'05	0°48'29				
max. Earth dist.	3964 Jan 22 15:45	1° \approx 43'27	31.26410 AU	conjunction	3972 Feb 09 01:50	19° \approx 13'20	0°22'51
retrograde	3964 May 05 03:14	4° \approx 12'33		minimum elong	3972 Feb 09 01:50	19° \approx 13'20	0°22'51
opposition	3964 Jul 23 17:54	2° \approx 50'04	0°50'11	max. Earth dist.	3972 Feb 09 00:15	19° \approx 13'11	31.18516 AU
min. Earth dist.	3964 Jul 24 00:21	2° \approx 49'38	29.26105 AU	retrograde	3972 May 22 22:49	21° \approx 42'48	
direct	3964 Oct 12 08:04	1° \approx 26'24		opposition	3972 Aug 11 00:03	20° \approx 19'39	0°22'34
				min. Earth dist.	3972 Aug 11 00:41	20° \approx 19'36	29.18083 AU
conjunction	3965 Jan 24 07:49	3° \approx 55'20	0°45'28	direct	3972 Oct 30 04:20	18° \approx 56'02	
minimum elong	3965 Jan 24 07:49	3° \approx 55'20	0°45'28				
max. Earth dist.	3965 Jan 24 00:38	3° \approx 54'40	31.25726 AU	conjunction	3973 Feb 10 11:15	21° \approx 24'30	0°19'26
retrograde	3965 May 07 16:12	6° \approx 23'56		minimum elong	3973 Feb 10 11:15	21° \approx 24'30	0°19'26
opposition	3965 Jul 26 06:41	5° \approx 01'24	0°46'56	max. Earth dist.	3973 Feb 10 11:35	21° \approx 24'32	31.17654 AU
min. Earth dist.	3965 Jul 26 12:47	5° \approx 00'59	29.25355 AU	retrograde	3973 May 25 09:43	23° \approx 54'09	
direct	3965 Oct 14 18:33	3° \approx 37'45		opposition	3973 Aug 13 12:51	22° \approx 30'58	0°18'55
				min. Earth dist.	3973 Aug 13 12:01	22° \approx 31'01	29.17244 AU
conjunction	3966 Jan 26 17:29	6° \approx 06'39	0°42'23	direct	3973 Nov 01 16:07	21° \approx 07'25	
minimum elong	3966 Jan 26 17:29	6° \approx 06'39	0°42'24				
max. Earth dist.	3966 Jan 26 11:48	6° \approx 06'07	31.24896 AU	conjunction	3974 Feb 12 20:41	23° \approx 35'52	0°16'00
retrograde	3966 May 10 03:22	8° \approx 35'22		minimum elong	3974 Feb 12 20:41	23° \approx 35'52	0°16'01
opposition	3966 Jul 28 19:21	7° \approx 12'45	0°43'37	behind sun begin	3974 Feb 12 19:34	23° \approx 35'46	
min. Earth dist.	3966 Jul 29 01:16	7° \approx 12'21	29.24440 AU	behind sun end	3974 Feb 12 21:48	23° \approx 35'58	
direct	3966 Oct 17 06:57	5° \approx 49'07		max. Earth dist.	3974 Feb 12 20:54	23° \approx 35'53	31.16848 AU
				retrograde	3974 May 27 22:52	26° \approx 05'42	
conjunction	3967 Jan 29 02:58	8° \approx 17'57	0°39'15	opposition	3974 Aug 16 01:36	24° \approx 42'29	0°15'13
minimum elong	3967 Jan 29 02:58	8° \approx 17'57	0°39'15	min. Earth dist.	3974 Aug 16 00:05	24° \approx 42'35	29.16459 AU
max. Earth dist.	3967 Jan 28 20:47	8° \approx 17'22	31.23921 AU	direct	3974 Nov 04 01:36	23° \approx 19'00	
retrograde	3967 May 12 15:54	10° \approx 46'46					
opposition	3967 Jul 31 08:07	9° \approx 24'04	0°40'14	conjunction	3975 Feb 15 06:21	25° \approx 47'27	0°12'33
min. Earth dist.	3967 Jul 31 12:52	9° \approx 23'45	29.23397 AU	minimum elong	3975 Feb 15 06:21	25° \approx 47'27	0°12'33
direct	3967 Oct 19 17:48	8° \approx 00'25		behind sun begin	3975 Feb 15 02:09	25° \approx 47'05	
				behind sun end	3975 Feb 15 10:34	25° \approx 47'50	
conjunction	3968 Jan 31 12:24	10° \approx 29'10	0°36'04	max. Earth dist.	3975 Feb 15 08:30	25° \approx 47'39	31.16063 AU
minimum elong	3968 Jan 31 12:24	10° \approx 29'10	0°36'05	retrograde	3975 May 30 10:38	28° \approx 17'29	
max. Earth dist.	3968 Jan 31 07:38	10° \approx 28'43	31.22820 AU	opposition	3975 Aug 18 14:35	26° \approx 54'14	0°11'30
retrograde	3968 May 14 02:25	12° \approx 58'06		min. Earth dist.	3975 Aug 18 12:34	26° \approx 54'22	29.15664 AU
opposition	3968 Aug 01 21:01	11° \approx 35'17	0°36'48	direct	3975 Nov 06 12:54	25° \approx 30'49	
min. Earth dist.	3968 Aug 02 01:52	11° \approx 34'57	29.22257 AU				
direct	3968 Oct 21 07:05	10° \approx 11'37		conjunction	3976 Feb 17 15:49	27° \approx 59'17	0°09'04
				minimum elong	3976 Feb 17 15:49	27° \approx 59'17	0°09'05
conjunction	3969 Feb 01 21:46	12° \approx 40'17	0°32'50	behind sun begin	3976 Feb 17 10:20	27° \approx 58'47	
minimum elong	3969 Feb 01 21:46	12° \approx 40'17	0°32'50	behind sun end	3976 Feb 17 21:17	27° \approx 59'46	
max. Earth dist.	3969 Feb 01 17:22	12° \approx 39'52	31.21675 AU	max. Earth dist.	3976 Feb 17 17:51	27° \approx 59'27	31.15262 AU
	3969 Apr 22 20:35	15° \approx			3976 Apr 19 08:41	0° \approx	
retrograde	3969 May 16 14:48	15° \approx 09'18		retrograde	3976 Jun 01 00:11	0° \approx 29'30	
	3969 Jun 09 16:26	15° \approx			3976 Jul 15 04:28	30° \approx	
opposition	3969 Aug 04 09:38	13° \approx 46'23	0°33'19	opposition	3976 Aug 20 03:36	29° \approx 06'13	0°07'46
min. Earth dist.	3969 Aug 04 12:38	13° \approx 46'11	29.21109 AU	min. Earth dist.	3976 Aug 20 00:16	29° \approx 06'27	29.14840 AU
direct	3969 Oct 23 19:38	12° \approx 22'42		direct	3976 Nov 07 22:52	27° \approx 42'51	
					3977 Feb 14 02:09	0° \approx	
conjunction	3970 Feb 04 07:08	14° \approx 51'18	0°29'32				
minimum elong	3970 Feb 04 07:08	14° \approx 51'18	0°29'33	conjunction	3977 Feb 19 01:41	0° \approx 11'19	0°05'35
max. Earth dist.	3970 Feb 04 03:48	14° \approx 50'59	31.20537 AU	minimum elong	3977 Feb 19 01:40	0° \approx 11'19	0°05'35
	3970 Feb 08 03:13	15° \approx		behind sun begin	3977 Feb 18 19:30	0° \approx 10'46	

behind sun end	3977 Feb 19 07:50	0° ✕ 11'52		min. Earth dist.	3983 Sep 05 15:01	14° ✕ 32'49	29.06829 AU
max. Earth dist.	3977 Feb 19 04:58	0° ✕ 11'36	31.14391 AU	direct	3983 Nov 24 09:42	13° ✕ 08'56	
retrograde	3977 Jun 03 12:19	2° ✕ 41'44					
opposition	3977 Aug 22 16:37	1° ✕ 18'24	0°04'01	conjunction	3984 Mar 05 22:59	15° ✕ 37'06	0°-18'-58
min. Earth dist.	3977 Aug 22 13:34	1° ✕ 18'36	29.13925 AU	minimum elong	3984 Mar 05 22:59	15° ✕ 37'06	0°18'58
	3977 Oct 24 03:18	30° ℞ ≈		max. Earth dist.	3984 Mar 06 07:49	15° ✕ 37'56	31.06288 AU
direct	3977 Nov 10 11:39	29° ≈ 55'05		retrograde	3984 Jun 18 22:20	18° ✕ 08'31	
	3977 Nov 27 15:11	0° ✕		opposition	3984 Sep 07 12:05	16° ✕ 44'33	0°-22'-6
				min. Earth dist.	3984 Sep 07 03:17	16° ✕ 45'09	29.05795 AU
conjunction	3978 Feb 21 11:31	2° ✕ 23'32	0°02'04	direct	3984 Nov 25 20:43	15° ✕ 21'12	
minimum elong	3978 Feb 21 11:31	2° ✕ 23'32	0°02'04				
behind sun begin	3978 Feb 21 05:08	2° ✕ 22'57		conjunction	3985 Mar 08 08:59	17° ✕ 49'21	0°-22'-24
behind sun end	3978 Feb 21 17:55	2° ✕ 24'07		minimum elong	3985 Mar 08 08:59	17° ✕ 49'21	0°22'25
max. Earth dist.	3978 Feb 21 14:57	2° ✕ 23'49	31.13427 AU	max. Earth dist.	3985 Mar 08 17:56	17° ✕ 50'12	31.05320 AU
retrograde	3978 Jun 06 02:29	4° ✕ 54'06		retrograde	3985 Jun 21 12:06	20° ✕ 20'56	
opposition	3978 Aug 25 05:38	3° ✕ 30'43	0°00'15	opposition	3985 Sep 10 00:57	18° ✕ 56'54	0°-25'-46
min. Earth dist.	3978 Aug 25 01:02	3° ✕ 31'02	29.12895 AU	min. Earth dist.	3985 Sep 09 14:40	18° ✕ 57'36	29.04886 AU
desc. node	3978 Sep 19 01:02	2° ✕ 51'52		direct	3985 Nov 28 06:40	17° ✕ 33'35	
direct	3978 Nov 13 00:12	2° ✕ 07'25					
				conjunction	3986 Mar 10 19:09	20° ✕ 01'44	0°-25'-48
conjunction	3979 Feb 23 21:22	4° ✕ 35'51	0°-1'-33	minimum elong	3986 Mar 10 19:09	20° ✕ 01'44	0°25'48
minimum elong	3979 Feb 23 21:23	4° ✕ 35'51	0°01'34	max. Earth dist.	3986 Mar 11 05:34	20° ✕ 02'43	31.04448 AU
behind sun begin	3979 Feb 23 14:59	4° ✕ 35'16		retrograde	3986 Jun 24 00:36	22° ✕ 33'29	
behind sun end	3979 Feb 24 03:47	4° ✕ 36'26		opposition	3986 Sep 12 14:04	21° ✕ 09'24	0°-29'-23
max. Earth dist.	3979 Feb 24 01:20	4° ✕ 36'11	31.12325 AU	min. Earth dist.	3986 Sep 12 03:41	21° ✕ 10'07	29.04056 AU
retrograde	3979 Jun 08 13:29	7° ✕ 06'35		direct	3986 Nov 30 18:33	19° ✕ 46'08	
opposition	3979 Aug 27 18:52	5° ✕ 43'07	0°-3'-29				
min. Earth dist.	3979 Aug 27 14:47	5° ✕ 43'23	29.11738 AU	conjunction	3987 Mar 13 05:15	22° ✕ 14'18	0°-29'-10
direct	3979 Nov 15 11:40	4° ✕ 19'49		minimum elong	3987 Mar 13 05:15	22° ✕ 14'17	0°29'11
				max. Earth dist.	3987 Mar 13 16:18	22° ✕ 15'20	31.03656 AU
conjunction	3980 Feb 26 07:23	6° ✕ 48'12	0°-5'-5	retrograde	3987 Jun 26 15:01	24° ✕ 46'13	
minimum elong	3980 Feb 26 07:23	6° ✕ 48'12	0°05'05	opposition	3987 Sep 15 03:08	23° ✕ 22'06	0°-32'-58
behind sun begin	3980 Feb 26 01:09	6° ✕ 47'38		min. Earth dist.	3987 Sep 14 14:58	23° ✕ 22'56	29.03284 AU
behind sun end	3980 Feb 26 13:36	6° ✕ 48'46		direct	3987 Dec 03 06:14	21° ✕ 58'53	
max. Earth dist.	3980 Feb 26 12:21	6° ✕ 48'38	31.11125 AU				
retrograde	3980 Jun 10 00:35	9° ✕ 19'04		conjunction	3988 Mar 14 15:36	24° ✕ 27'04	0°-32'-30
opposition	3980 Aug 29 07:55	7° ✕ 55'29	0°-7'-15	minimum elong	3988 Mar 14 15:36	24° ✕ 27'04	0°32'31
min. Earth dist.	3980 Aug 29 02:12	7° ✕ 55'52	29.10491 AU	max. Earth dist.	3988 Mar 15 03:19	24° ✕ 28'10	31.02888 AU
direct	3980 Nov 17 00:46	6° ✕ 32'11		retrograde	3988 Jun 28 03:26	26° ✕ 59'11	
				opposition	3988 Sep 16 16:21	25° ✕ 35'01	0°-36'-30
conjunction	3981 Feb 27 17:10	9° ✕ 00'30	0°-8'-34	min. Earth dist.	3988 Sep 16 04:40	25° ✕ 35'49	29.02525 AU
minimum elong	3981 Feb 27 17:10	9° ✕ 00'30	0°08'35	direct	3988 Dec 04 17:08	24° ✕ 11'51	
behind sun begin	3981 Feb 27 11:34	8° ✕ 59'59					
behind sun end	3981 Feb 27 22:47	9° ✕ 01'00		conjunction	3989 Mar 17 02:08	26° ✕ 40'03	0°-35'-47
max. Earth dist.	3981 Feb 27 22:09	9° ✕ 00'57	31.09852 AU	minimum elong	3989 Mar 17 02:08	26° ✕ 40'03	0°35'49
retrograde	3981 Jun 12 12:33	11° ✕ 31'30		max. Earth dist.	3989 Mar 17 14:57	26° ✕ 41'16	31.02116 AU
opposition	3981 Aug 31 21:03	10° ✕ 07'48	0°-10'-59	retrograde	3989 Jun 30 16:33	29° ✕ 12'20	
min. Earth dist.	3981 Aug 31 15:21	10° ✕ 08'11	29.09217 AU	opposition	3989 Sep 19 05:27	27° ✕ 48'10	0°-40'00
direct	3981 Nov 19 11:26	8° ✕ 44'28		min. Earth dist.	3989 Sep 18 16:20	27° ✕ 49'03	29.01720 AU
				direct	3989 Dec 07 06:12	26° ✕ 25'02	
conjunction	3982 Mar 02 03:11	11° ✕ 12'44	0°-12'-3				
minimum elong	3982 Mar 02 03:10	11° ✕ 12'44	0°12'03	conjunction	3990 Mar 19 12:44	28° ✕ 53'15	0°-39'-1
behind sun begin	3982 Mar 01 22:44	11° ✕ 12'20		minimum elong	3990 Mar 19 12:44	28° ✕ 53'15	0°39'02
behind sun end	3982 Mar 02 07:37	11° ✕ 13'08		max. Earth dist.	3990 Mar 20 01:09	28° ✕ 54'26	31.01261 AU
max. Earth dist.	3982 Mar 02 09:55	11° ✕ 13'21	31.08583 AU		3990 Apr 18 20:01	0° ℣	
retrograde	3982 Jun 14 23:00	13° ✕ 43'51		retrograde	3990 Jul 03 06:00	1° ℣ 25'44	
opposition	3982 Sep 03 09:55	12° ✕ 20'03	0°-14'-43	opposition	3990 Sep 21 18:39	0° ℣ 01'30	0°-43'-25
min. Earth dist.	3982 Sep 03 02:47	12° ✕ 20'32	29.07970 AU	min. Earth dist.	3990 Sep 21 05:58	0° ℣ 02'22	29.00828 AU
direct	3982 Nov 22 00:00	10° ✕ 56'42			3990 Sep 22 16:38	30° ℞ ✕	
				direct	3990 Dec 09 17:01	28° ✕ 38'25	
conjunction	3983 Mar 04 13:02	13° ✕ 24'55	0°-15'-31		3991 Feb 19 16:21	0° ℣	
minimum elong	3983 Mar 04 13:01	13° ✕ 24'55	0°15'32				
behind sun begin	3983 Mar 04 11:06	13° ✕ 24'44		conjunction	3991 Mar 21 23:37	1° ℣ 06'39	0°-42'-12
behind sun end	3983 Mar 04 14:56	13° ✕ 25'05		minimum elong	3991 Mar 21 23:37	1° ℣ 06'39	0°42'13
max. Earth dist.	3983 Mar 04 19:44	13° ✕ 25'32	31.07380 AU	max. Earth dist.	3991 Mar 22 13:19	1° ℣ 07'56	31.00310 AU
retrograde	3983 Jun 17 11:16	15° ✕ 56'11		retrograde	3991 Jul 05 17:28	3° ℣ 39'16	
opposition	3983 Sep 05 23:01	14° ✕ 32'17	0°-18'-25	opposition	3991 Sep 24 07:53	2° ℣ 15'00	0°-46'-47

min. Earth dist.	3991 Sep 23 18:13	2°♊15'56	28.99812 AU	conjunction	4000 Apr 10 02:40	21°♊09'32	-1°-7'-28
direct	3991 Dec 12 05:50	0°♊51'55		minimum elong	4000 Apr 10 02:40	21°♊09'32	1°07'29
				max. Earth dist.	4000 Apr 10 22:02	21°♊11'22	30.91376 AU
conjunction	3992 Mar 23 10:20	3°♊20'08	0°-45'-19	retrograde	4000 Jul 25 15:04	23°♊43'22	
minimum elong	3992 Mar 23 10:19	3°♊20'08	0°45'19	min. Earth dist.	4000 Oct 13 10:19	22°♊19'49	28.91111 AU
max. Earth dist.	3992 Mar 23 23:21	3°♊21'22	30.99238 AU	opposition	4000 Oct 14 05:10	22°♊18'31	-1°-13'-25
retrograde	3992 Jul 07 06:15	5°♊52'55		direct	4000 Dec 31 13:18	20°♊55'26	
opposition	3992 Sep 25 21:09	4°♊28'33	0°-50'-5				
min. Earth dist.	3992 Sep 25 07:22	4°♊29'30	28.98694 AU	conjunction	4001 Apr 12 14:09	23°♊23'47	-1°-9'-49
direct	3992 Dec 13 16:02	3°♊05'28		minimum elong	4001 Apr 12 14:09	23°♊23'47	1°09'51
				max. Earth dist.	4001 Apr 13 08:50	23°♊25'33	30.90736 AU
conjunction	3993 Mar 25 21:18	5°♊33'40	0°-48'-21	retrograde	4001 Jul 28 04:43	25°♊57'44	
minimum elong	3993 Mar 25 21:18	5°♊33'40	0°48'23	opposition	4001 Oct 16 18:03	24°♊32'53	-1°-15'-53
max. Earth dist.	3993 Mar 26 11:49	5°♊35'03	30.98070 AU	min. Earth dist.	4001 Oct 15 23:16	24°♊34'11	28.90476 AU
retrograde	3993 Jul 09 17:27	8°♊06'34		direct	4002 Jan 02 23:57	23°♊09'49	
opposition	3993 Sep 28 10:08	6°♊42'08	0°-53'-19				
min. Earth dist.	3993 Sep 27 20:08	6°♊43'05	28.97497 AU	conjunction	4002 Apr 15 01:56	25°♊38'13	-1°-12'-5
direct	3993 Dec 16 03:23	5°♊19'01		minimum elong	4002 Apr 15 01:56	25°♊38'13	1°12'06
				max. Earth dist.	4002 Apr 15 21:55	25°♊40'07	30.90070 AU
conjunction	3994 Mar 28 08:09	7°♊47'12	0°-51'-20	retrograde	4002 Jul 30 16:55	28°♊12'18	
minimum elong	3994 Mar 28 08:09	7°♊47'12	0°51'21	opposition	4002 Oct 19 07:04	26°♊47'25	-1°-18'-15
max. Earth dist.	3994 Mar 28 22:23	7°♊48'33	30.96871 AU	min. Earth dist.	4002 Oct 18 12:17	26°♊48'43	28.89780 AU
retrograde	3994 Jul 12 07:15	10°♊20'14		direct	4003 Jan 05 11:49	25°♊24'22	
opposition	3994 Sep 30 23:12	8°♊55'41	0°-56'-27				
min. Earth dist.	3994 Sep 30 08:08	8°♊56'43	28.96312 AU	conjunction	4003 Apr 17 13:37	27°♊52'47	-1°-14'-14
direct	3994 Dec 18 13:53	7°♊32'33		minimum elong	4003 Apr 17 13:36	27°♊52'47	1°14'15
				max. Earth dist.	4003 Apr 18 08:53	27°♊54'37	30.89338 AU
conjunction	3995 Mar 30 18:58	10°♊00'44	0°-54'-14		4003 Jun 22 07:03	0°♊	
minimum elong	3995 Mar 30 18:58	10°♊00'44	0°54'16	retrograde	4003 Aug 02 06:39	0°♊26'59	
max. Earth dist.	3995 Mar 31 10:30	10°♊02'12	30.95693 AU		4003 Sep 13 07:59	30°♊	
retrograde	3995 Jul 14 19:29	12°♊33'53		opposition	4003 Oct 21 20:09	29°♊02'03	-1°-20'-29
opposition	3995 Oct 03 12:21	11°♊09'15	0°-59'-31	min. Earth dist.	4003 Oct 21 00:51	29°♊03'23	28.89003 AU
min. Earth dist.	3995 Oct 02 21:16	11°♊10'17	28.95179 AU	direct	4004 Jan 07 22:48	27°♊38'59	
direct	3995 Dec 21 01:49	9°♊46'05			4004 Apr 15 19:17	0°♊	
conjunction	3996 Apr 01 05:57	12°♊14'16	0°-57'-3	conjunction	4004 Apr 19 01:39	0°♊07'26	-1°-16'-16
minimum elong	3996 Apr 01 05:57	12°♊14'16	0°57'04	minimum elong	4004 Apr 19 01:39	0°♊07'26	1°16'17
max. Earth dist.	3996 Apr 01 22:01	12°♊15'48	30.94615 AU	max. Earth dist.	4004 Apr 19 21:29	0°♊09'19	30.88493 AU
retrograde	3996 Jul 16 09:47	14°♊47'33		retrograde	4004 Aug 03 18:14	2°♊41'43	
min. Earth dist.	3996 Oct 04 08:27	13°♊24'00	28.94161 AU	opposition	4004 Oct 23 09:07	1°♊16'43	-1°-22'-36
opposition	3996 Oct 05 01:14	13°♊22'51	-1°-2'-29	min. Earth dist.	4004 Oct 22 14:32	1°♊18'01	28.88108 AU
direct	3996 Dec 22 13:04	11°♊59'40			4004 Dec 20 23:41	30°♊	
				direct	4005 Jan 09 10:14	29°♊53'37	
conjunction	3997 Apr 03 16:59	14°♊27'53	0°-59'-48		4005 Jan 28 15:16	0°♊	
minimum elong	3997 Apr 03 16:59	14°♊27'53	0°59'49				
max. Earth dist.	3997 Apr 04 09:40	14°♊29'28	30.93642 AU	conjunction	4005 Apr 21 13:41	2°♊22'04	-1°-18'-11
retrograde	3997 Jul 18 22:35	17°♊01'18		minimum elong	4005 Apr 21 13:41	2°♊22'04	1°18'13
opposition	3997 Oct 07 14:17	15°♊36'33	-1°-5'-22	max. Earth dist.	4005 Apr 22 09:18	2°♊23'56	30.87559 AU
min. Earth dist.	3997 Oct 06 21:52	15°♊37'40	28.93255 AU	retrograde	4005 Aug 06 08:21	4°♊56'25	
direct	3997 Dec 25 00:00	14°♊13'23		opposition	4005 Oct 25 21:57	3°♊31'20	-1°-24'-35
				min. Earth dist.	4005 Oct 25 02:21	3°♊32'42	28.87135 AU
conjunction	3998 Apr 06 04:08	16°♊41'37	-1°-2'-27	direct	4006 Jan 11 21:35	2°♊08'10	
minimum elong	3998 Apr 06 04:08	16°♊41'36	1°02'27				
max. Earth dist.	3998 Apr 06 22:04	16°♊43'19	30.92793 AU	conjunction	4006 Apr 24 01:37	4°♊36'38	-1°-19'-59
retrograde	3998 Jul 21 12:49	19°♊15'09		minimum elong	4006 Apr 24 01:37	4°♊36'38	1°20'00
min. Earth dist.	3998 Oct 09 09:04	17°♊51'36	28.92457 AU	max. Earth dist.	4006 Apr 24 21:19	4°♊38'30	30.86554 AU
opposition	3998 Oct 10 03:07	17°♊50'21	-1°-8'-9	retrograde	4006 Aug 08 20:56	7°♊11'02	
direct	3998 Dec 27 13:29	16°♊27'13		opposition	4006 Oct 28 10:49	5°♊45'52	-1°-26'-27
				min. Earth dist.	4006 Oct 27 16:05	5°♊47'10	28.86134 AU
conjunction	3999 Apr 08 15:18	18°♊55'29	-1°-5'00	direct	4007 Jan 14 09:01	4°♊22'39	
minimum elong	3999 Apr 08 15:18	18°♊55'29	1°05'01				
max. Earth dist.	3999 Apr 09 09:05	18°♊57'10	30.92043 AU	conjunction	4007 Apr 26 13:43	6°♊51'06	-1°-21'-40
retrograde	3999 Jul 24 03:15	21°♊29'10		minimum elong	4007 Apr 26 13:42	6°♊51'06	1°21'42
opposition	3999 Oct 12 16:13	20°♊04'21	-1°-10'-50	max. Earth dist.	4007 Apr 27 10:18	6°♊53'03	30.85572 AU
min. Earth dist.	3999 Oct 11 22:24	20°♊05'34	28.91761 AU	retrograde	4007 Aug 11 11:10	9°♊25'32	
direct	3999 Dec 30 00:42	18°♊41'14		opposition	4007 Oct 30 23:27	8°♊00'18	-1°-28'-11
				min. Earth dist.	4007 Oct 30 03:27	8°♊01'42	28.85182 AU

direct	4008 Jan 16 22:30	6°♄37'01		direct	4016 Feb 03 16:51	24°♄35'10	
conjunction	4008 Apr 28 01:40	9°♄05'30	-1°-23'-14	conjunction	4016 May 16 05:53	27°♄04'10	-1°-31'00
minimum elong	4008 Apr 28 01:40	9°♄05'30	1°23'15	minimum elong	4016 May 16 05:53	27°♄04'10	1°31'01
max. Earth dist.	4008 Apr 28 21:52	9°♄07'25	30.84657 AU	max. Earth dist.	4016 May 17 04:10	27°♄06'17	30.81266 AU
retrograde	4008 Aug 13 01:01	11°♄40'00		retrograde	4016 Aug 31 11:11	29°♄39'12	
opposition	4008 Nov 01 12:10	10°♄14'42	-1°-29'-48	opposition	4016 Nov 19 15:56	28°♄13'55	-1°-37'-31
min. Earth dist.	4008 Oct 31 16:41	10°♄16'03	28.84332 AU	min. Earth dist.	4016 Nov 18 19:04	28°♄15'23	28.81176 AU
direct	4009 Jan 18 09:52	8°♄51'22		direct	4017 Feb 05 06:04	26°♄50'35	
conjunction	4009 Apr 30 13:57	11°♄19'53	-1°-24'-40	conjunction	4017 May 18 18:57	29°♄19'39	-1°-31'-21
minimum elong	4009 Apr 30 13:57	11°♄19'53	1°24'41	minimum elong	4017 May 18 18:57	29°♄19'39	1°31'22
max. Earth dist.	4009 May 01 11:29	11°♄21'55	30.83862 AU	max. Earth dist.	4017 May 19 16:04	29°♄21'39	30.80867 AU
retrograde	4009 Aug 15 13:33	13°♄54'26			4017 Jun 05 18:22	0°♄	
min. Earth dist.	4009 Nov 03 04:02	12°♄30'31	28.83602 AU	retrograde	4017 Sep 03 00:45	1°♄54'41	
opposition	4009 Nov 04 00:32	12°♄29'05	-1°-31'-16	min. Earth dist.	4017 Nov 21 08:41	0°♄30'44	28.80746 AU
direct	4010 Jan 20 22:44	11°♄05'45		opposition	4017 Nov 22 04:18	0°♄29'22	-1°-37'-50
conjunction	4010 May 03 02:05	13°♄34'18	-1°-25'-58		4017 Dec 10 00:45	30°♄	
minimum elong	4010 May 03 02:04	13°♄34'18	1°25'59	direct	4018 Feb 07 17:09	29°♄05'59	
max. Earth dist.	4010 May 03 22:57	13°♄36'17	30.83206 AU		4018 Apr 06 00:36	0°♄	
	4010 Jun 12 00:33	15°♄		conjunction	4018 May 21 08:08	1°♄35'05	-1°-31'-35
retrograde	4010 Aug 18 03:57	16°♄08'55		minimum elong	4018 May 21 08:08	1°♄35'05	1°31'36
	4010 Oct 27 15:32	15°♄		max. Earth dist.	4018 May 22 05:56	1°♄37'08	30.80414 AU
opposition	4010 Nov 06 13:07	14°♄43'33	-1°-32'-35	retrograde	4018 Sep 05 14:15	4°♄10'05	
min. Earth dist.	4010 Nov 05 16:32	14°♄44'59	28.83028 AU	opposition	4018 Nov 24 16:32	2°♄44'44	-1°-38'00
direct	4011 Jan 23 09:50	13°♄20'12		min. Earth dist.	4018 Nov 23 20:26	2°♄46'08	28.80272 AU
	4011 Apr 13 17:40	15°♄		direct	4019 Feb 10 06:35	1°♄21'17	
conjunction	4011 May 05 14:20	15°♄48'49	-1°-27'-9	conjunction	4019 May 23 21:03	3°♄50'24	-1°-31'-40
minimum elong	4011 May 05 14:20	15°♄48'49	1°27'10	minimum elong	4019 May 23 21:03	3°♄50'24	1°31'41
max. Earth dist.	4011 May 06 12:45	15°♄50'57	30.82697 AU	max. Earth dist.	4019 May 24 17:39	3°♄52'21	30.79948 AU
retrograde	4011 Aug 20 16:24	18°♄23'31		retrograde	4019 Sep 08 05:27	6°♄25'22	
min. Earth dist.	4011 Nov 08 04:49	16°♄59'36	28.82584 AU	min. Earth dist.	4019 Nov 26 09:13	5°♄01'21	28.79827 AU
opposition	4011 Nov 09 01:41	16°♄58'09	-1°-33'-46	opposition	4019 Nov 27 04:48	4°♄59'59	-1°-38'00
direct	4012 Jan 25 21:59	15°♄34'49		direct	4020 Feb 12 19:00	3°♄36'27	
conjunction	4012 May 07 02:43	18°♄03'30	-1°-28'-11	conjunction	4020 May 25 10:19	6°♄05'36	-1°-31'-36
minimum elong	4012 May 07 02:43	18°♄03'29	1°28'13	minimum elong	4020 May 25 10:19	6°♄05'36	1°31'38
max. Earth dist.	4012 May 08 00:35	18°♄05'34	30.82324 AU	max. Earth dist.	4020 May 26 07:58	6°♄07'39	30.79526 AU
retrograde	4012 Aug 22 06:04	20°♄38'16		retrograde	4020 Sep 09 17:23	8°♄40'31	
opposition	4012 Nov 10 14:04	19°♄12'55	-1°-34'-49	opposition	4020 Nov 28 16:45	7°♄15'06	-1°-37'-52
min. Earth dist.	4012 Nov 09 16:42	19°♄14'25	28.82271 AU	min. Earth dist.	4020 Nov 27 21:18	7°♄16'28	28.79443 AU
direct	4013 Jan 27 08:39	17°♄49'36		direct	4021 Feb 14 08:08	5°♄51'31	
conjunction	4013 May 09 15:20	20°♄18'22	-1°-29'-6	conjunction	4021 May 27 23:28	8°♄20'41	-1°-31'-24
minimum elong	4013 May 09 15:20	20°♄18'22	1°29'07	minimum elong	4021 May 27 23:28	8°♄20'41	1°31'26
max. Earth dist.	4013 May 10 13:59	20°♄20'30	30.82042 AU	max. Earth dist.	4021 May 28 20:09	8°♄22'38	30.79202 AU
retrograde	4013 Aug 24 17:40	22°♄53'14		retrograde	4021 Sep 12 07:13	10°♄55'34	
min. Earth dist.	4013 Nov 12 05:52	21°♄29'21	28.82019 AU	min. Earth dist.	4021 Nov 30 09:02	9°♄31'30	28.79183 AU
opposition	4013 Nov 13 02:35	21°♄27'54	-1°-35'-43	opposition	4021 Dec 01 04:46	9°♄30'07	-1°-37'-35
direct	4014 Jan 29 19:26	20°♄04'37		direct	4022 Feb 16 19:36	8°♄06'28	
conjunction	4014 May 12 03:57	22°♄33'27	-1°-29'-52	conjunction	4022 May 30 12:34	10°♄35'41	-1°-31'-4
minimum elong	4014 May 12 03:56	22°♄33'27	1°29'53	minimum elong	4022 May 30 12:34	10°♄35'41	1°31'06
max. Earth dist.	4014 May 13 02:18	22°♄35'34	30.81814 AU	max. Earth dist.	4022 May 31 10:02	10°♄37'42	30.78998 AU
retrograde	4014 Aug 27 08:19	25°♄08'23		retrograde	4022 Sep 14 18:53	13°♄10'32	
opposition	4014 Nov 15 15:00	23°♄43'06	-1°-36'-28	opposition	4022 Dec 03 16:47	11°♄45'04	-1°-37'-9
min. Earth dist.	4014 Nov 14 17:28	23°♄44'36	28.81793 AU	min. Earth dist.	4022 Dec 02 21:37	11°♄46'25	28.79053 AU
direct	4015 Feb 01 05:50	22°♄19'49		direct	4023 Feb 19 07:15	10°♄21'24	
conjunction	4015 May 14 16:48	24°♄48'45	-1°-30'-30	conjunction	4023 Jun 02 01:49	12°♄50'39	-1°-30'-36
minimum elong	4015 May 14 16:49	24°♄48'45	1°30'32	minimum elong	4023 Jun 02 01:50	12°♄50'39	1°30'37
max. Earth dist.	4015 May 15 14:57	24°♄50'50	30.81565 AU	max. Earth dist.	4023 Jun 02 22:52	12°♄52'38	30.78957 AU
retrograde	4015 Aug 29 20:49	27°♄23'45		retrograde	4023 Sep 17 09:05	15°♄25'28	
min. Earth dist.	4015 Nov 17 07:18	25°♄59'53	28.81526 AU	min. Earth dist.	4023 Dec 05 08:33	14°♄01'26	28.79086 AU
opposition	4015 Nov 18 03:33	25°♄58'28	-1°-37'-4	opposition	4023 Dec 06 04:35	14°♄00'01	-1°-36'-34

direct	4024 Feb 21 18:20	12°II36'19		direct	4032 Mar 10 17:51	0°☾38'57	
conjunction	4024 Jun 03 15:12	15°II05'38	-1°-29'-59	conjunction	4032 Jun 22 05:36	3°☾08'52	-1°-20'-10
minimum elong	4024 Jun 03 15:12	15°II05'38	1°30'00	minimum elong	4032 Jun 22 05:36	3°☾08'52	1°20'12
max. Earth dist.	4024 Jun 04 12:13	15°II07'37	30.79056 AU	max. Earth dist.	4032 Jun 22 22:06	3°☾10'25	30.80725 AU
retrograde	4024 Sep 18 20:18	17°II40'26		retrograde	4032 Oct 07 09:23	5°☾43'14	
opposition	4024 Dec 07 16:31	16°II15'01	-1°-35'-50	opposition	4032 Dec 25 14:05	4°☾18'08	-1°-24'-46
min. Earth dist.	4024 Dec 06 21:36	16°II16'21	28.79253 AU	min. Earth dist.	4032 Dec 24 22:41	4°☾19'13	28.80834 AU
direct	4025 Feb 23 05:03	14°II51'19		direct	4033 Mar 13 05:47	2°☾54'11	
conjunction	4025 Jun 06 04:41	17°II20'42	-1°-29'-13	conjunction	4033 Jun 24 19:28	5°☾24'09	-1°-18'-23
minimum elong	4025 Jun 06 04:41	17°II20'42	1°29'14	minimum elong	4033 Jun 24 19:28	5°☾24'09	1°18'23
max. Earth dist.	4025 Jun 07 01:55	17°II22'42	30.79291 AU	max. Earth dist.	4033 Jun 25 11:39	5°☾25'40	30.80817 AU
retrograde	4025 Sep 21 09:46	19°II55'28		retrograde	4033 Oct 09 19:44	7°☾58'24	
min. Earth dist.	4025 Dec 09 08:34	18°II31'31	28.79529 AU	min. Earth dist.	4033 Dec 27 11:28	6°☾34'18	28.80966 AU
opposition	4025 Dec 10 04:11	18°II30'08	-1°-34'-57	opposition	4033 Dec 28 01:29	6°☾33'19	-1°-22'-47
direct	4026 Feb 25 17:04	17°II06'25		direct	4034 Mar 15 16:54	5°☾09'18	
conjunction	4026 Jun 08 18:11	19°II35'55	-1°-28'-20	conjunction	4034 Jun 27 09:23	7°☾39'19	-1°-16'-28
minimum elong	4026 Jun 08 18:11	19°II35'55	1°28'21	minimum elong	4034 Jun 27 09:23	7°☾39'19	1°16'29
max. Earth dist.	4026 Jun 09 14:30	19°II37'50	30.79605 AU	max. Earth dist.	4034 Jun 28 01:24	7°☾40'49	30.81009 AU
retrograde	4026 Sep 23 23:04	22°II10'41		retrograde	4034 Oct 12 08:44	10°☾13'27	
opposition	4026 Dec 12 16:05	20°II45'24	-1°-33'-55	opposition	4034 Dec 30 12:42	8°☾48'23	-1°-20'-41
min. Earth dist.	4026 Dec 11 21:47	20°II46'41	28.79871 AU	min. Earth dist.	4034 Dec 29 22:05	8°☾49'25	28.81208 AU
direct	4027 Feb 28 03:08	19°II21'42		direct	4035 Mar 18 04:39	7°☾24'19	
conjunction	4027 Jun 11 07:55	21°II51'17	-1°-27'-18	conjunction	4035 Jun 29 23:11	9°☾54'23	-1°-14'-26
minimum elong	4027 Jun 11 07:55	21°II51'17	1°27'18	minimum elong	4035 Jun 29 23:12	9°☾54'23	1°14'26
max. Earth dist.	4027 Jun 12 04:40	21°II53'14	30.79954 AU	max. Earth dist.	4035 Jun 30 14:18	9°☾55'48	30.81312 AU
retrograde	4027 Sep 26 12:51	24°II26'02		retrograde	4035 Oct 14 20:34	12°☾28'26	
min. Earth dist.	4027 Dec 14 09:26	23°II02'07	28.80196 AU	min. Earth dist.	4036 Jan 01 10:42	11°☾04'20	28.81581 AU
opposition	4027 Dec 15 03:51	23°II00'49	-1°-32'-44	opposition	4036 Jan 02 00:04	11°☾03'23	-1°-18'-27
direct	4028 Mar 01 16:17	21°II37'06		direct	4036 Mar 19 14:15	9°☾39'16	
conjunction	4028 Jun 12 21:47	24°II06'48	-1°-26'-8	conjunction	4036 Jul 01 13:16	12°☾09'24	-1°-12'-17
minimum elong	4028 Jun 12 21:47	24°II06'48	1°26'09	minimum elong	4036 Jul 01 13:16	12°☾09'24	1°12'19
max. Earth dist.	4028 Jun 13 16:40	24°II08'34	30.80252 AU	max. Earth dist.	4036 Jul 02 04:45	12°☾10'51	30.81758 AU
retrograde	4028 Sep 28 03:59	26°II41'30		retrograde	4036 Oct 16 08:41	14°☾43'20	
opposition	4028 Dec 16 15:37	25°II16'20	-1°-31'-25	opposition	4037 Jan 03 11:07	13°☾18'21	-1°-16'-5
min. Earth dist.	4028 Dec 15 22:18	25°II17'33	28.80459 AU	min. Earth dist.	4037 Jan 02 21:26	13°☾19'19	28.82084 AU
direct	4029 Mar 04 04:13	23°II52'36		direct	4037 Mar 22 03:32	11°☾54'12	
conjunction	4029 Jun 15 11:52	26°II22'23	-1°-24'-50	conjunction	4037 Jul 04 03:09	14°☾24'24	-1°-10'-2
minimum elong	4029 Jun 15 11:52	26°II22'23	1°24'50	minimum elong	4037 Jul 04 03:10	14°☾24'24	1°10'03
max. Earth dist.	4029 Jun 16 07:05	26°II24'11	30.80465 AU	max. Earth dist.	4037 Jul 04 17:08	14°☾25'42	30.82336 AU
retrograde	4029 Sep 30 16:28	28°II57'01		retrograde	4037 Oct 18 22:17	16°☾58'15	
min. Earth dist.	4029 Dec 18 10:44	27°II33'04	28.80615 AU	opposition	4038 Jan 05 22:22	15°☾33'19	-1°-13'-37
opposition	4029 Dec 19 03:24	27°II31'53	-1°-29'-57	min. Earth dist.	4038 Jan 05 09:27	15°☾34'14	28.82725 AU
direct	4030 Mar 06 17:26	26°II08'08		direct	4038 Mar 24 14:44	14°☾09'10	
conjunction	4030 Jun 18 01:37	28°II37'58	-1°-23'-24	conjunction	4038 Jul 06 17:07	16°☾39'26	-1°-7'-40
minimum elong	4030 Jun 18 01:37	28°II37'58	1°23'26	minimum elong	4038 Jul 06 17:07	16°☾39'26	1°07'42
max. Earth dist.	4030 Jun 18 19:08	28°II39'36	30.80592 AU	max. Earth dist.	4038 Jul 07 07:45	16°☾40'49	30.83027 AU
retrograde	4030 Jul 26 08:10	0°☾		retrograde	4038 Oct 21 10:31	19°☾13'11	
opposition	4030 Oct 03 07:06	1°☾12'32		opposition	4039 Jan 08 09:32	17°☾48'21	-1°-11'-2
min. Earth dist.	4030 Dec 14 03:58	30°☾II		min. Earth dist.	4039 Jan 07 21:08	17°☾49'13	28.83441 AU
direct	4030 Dec 21 15:08	29°II47'24	-1°-28'-21	direct	4039 Mar 27 03:10	16°☾24'11	
conjunction	4030 Dec 20 22:50	29°II48'33	28.80708 AU	conjunction	4039 Jul 09 07:10	18°☾54'33	-1°-5'-12
direct	4031 Mar 09 05:26	28°II23'35		minimum elong	4039 Jul 09 07:11	18°☾54'33	1°05'13
conjunction	4031 Jun 20 15:38	0°☾53'28	-1°-21'-51	max. Earth dist.	4039 Jul 09 20:04	18°☾55'45	30.83776 AU
minimum elong	4031 Jun 20 15:39	0°☾53'28	1°21'52	retrograde	4039 Oct 24 01:20	21°☾28'12	
max. Earth dist.	4031 Jun 21 09:20	0°☾55'08	30.80658 AU	opposition	4040 Jan 10 20:32	20°☾03'26	-1°-8'-20
retrograde	4031 Oct 05 19:32	3°☾27'56		min. Earth dist.	4040 Jan 10 08:42	20°☾04'16	28.84193 AU
min. Earth dist.	4031 Dec 23 11:36	2°☾03'53	28.80759 AU	direct	4040 Mar 28 15:10	18°☾39'15	
opposition	4031 Dec 24 02:40	2°☾02'49	-1°-26'-38	conjunction	4040 Jul 10 21:30	21°☾09'42	-1°-2'-38

minimum elong	4040 Jul 10 21:31	21° \mathring{S} 09'42	1°02'39	conjunction	4048 Jul 29 14:25	9° \mathring{N} 06'48	0°-39'-7
max. Earth dist.	4040 Jul 11 10:23	21° \mathring{S} 10'54	30.84505 AU	minimum elong	4048 Jul 29 14:25	9° \mathring{N} 06'48	0°39'09
retrograde	4040 Oct 25 13:59	23° \mathring{S} 43'14		max. Earth dist.	4048 Jul 29 19:33	9° \mathring{N} 07'17	30.88964 AU
opposition	4041 Jan 12 07:43	22° \mathring{S} 18'32	-1°-5'-32	retrograde	4048 Nov 12 15:02	11° \mathring{N} 39'06	
min. Earth dist.	4041 Jan 11 21:23	22° \mathring{S} 19'16	28.84888 AU	opposition	4049 Jan 29 22:08	10° \mathring{N} 14'41	0°-40'-5
direct	4041 Mar 31 04:11	20° \mathring{S} 54'21		min. Earth dist.	4049 Jan 29 16:54	10° \mathring{N} 15'04	28.89400 AU
				direct	4049 Apr 18 02:58	8° \mathring{N} 50'01	
conjunction	4041 Jul 13 11:41	23° \mathring{S} 24'51	0°-59'-58				
minimum elong	4041 Jul 13 11:41	23° \mathring{S} 24'51	0°59'58	conjunction	4049 Aug 01 04:18	11° \mathring{N} 20'51	0°-35'-53
max. Earth dist.	4041 Jul 13 22:49	23° \mathring{S} 25'54	30.85168 AU	minimum elong	4049 Aug 01 04:18	11° \mathring{N} 20'51	0°35'54
retrograde	4041 Oct 28 03:40	25° \mathring{S} 58'16		max. Earth dist.	4049 Aug 01 09:56	11° \mathring{N} 21'22	30.89834 AU
opposition	4042 Jan 14 18:45	24° \mathring{S} 33'37	-1°-2'-38	retrograde	4049 Nov 15 02:42	13° \mathring{N} 53'00	
min. Earth dist.	4042 Jan 14 08:26	24° \mathring{S} 34'21	28.85502 AU	opposition	4050 Feb 01 08:45	12° \mathring{N} 28'41	0°-36'-36
direct	4042 Apr 02 16:50	23° \mathring{S} 09'22		min. Earth dist.	4050 Feb 01 04:35	12° \mathring{N} 28'58	28.90338 AU
				direct	4050 Apr 20 15:48	11° \mathring{N} 04'01	
conjunction	4042 Jul 16 01:57	25° \mathring{S} 39'56	0°-57'-13				
minimum elong	4042 Jul 16 01:57	25° \mathring{S} 39'56	0°57'14	conjunction	4050 Aug 03 18:08	13° \mathring{N} 34'54	0°-32'-35
max. Earth dist.	4042 Jul 16 12:18	25° \mathring{S} 40'54	30.85733 AU	minimum elong	4050 Aug 03 18:08	13° \mathring{N} 34'54	0°32'37
retrograde	4042 Oct 30 15:02	28° \mathring{S} 13'11		max. Earth dist.	4050 Aug 03 22:24	13° \mathring{N} 35'18	30.90855 AU
opposition	4043 Jan 17 05:50	26° \mathring{S} 48'35	0°-59'-39		4050 Sep 13 01:22	15° \mathring{N}	
min. Earth dist.	4043 Jan 16 21:23	26° \mathring{S} 49'10	28.86025 AU	retrograde	4050 Nov 17 16:08	16° \mathring{N} 06'56	
direct	4043 Apr 05 04:11	25° \mathring{S} 24'16			4051 Jan 24 13:29	15° \mathring{R} \mathring{S}	
				opposition	4051 Feb 03 19:10	14° \mathring{N} 42'43	0°-33'-3
conjunction	4043 Jul 18 16:12	27° \mathring{S} 54'52	0°-54'-23	min. Earth dist.	4051 Feb 03 14:43	14° \mathring{N} 43'02	28.91410 AU
minimum elong	4043 Jul 18 16:13	27° \mathring{S} 54'52	0°54'23	direct	4051 Apr 23 04:03	13° \mathring{N} 18'03	
max. Earth dist.	4043 Jul 19 01:37	27° \mathring{S} 55'44	30.86234 AU		4051 Jul 15 00:15	15° \mathring{N}	
	4043 Sep 21 17:42	0° \mathring{N}					
retrograde	4043 Nov 02 04:21	0° \mathring{N} 27'57		conjunction	4051 Aug 06 08:08	15° \mathring{N} 49'03	0°-29'-15
	4043 Dec 14 02:53	30° \mathring{R} \mathring{S}		minimum elong	4051 Aug 06 08:08	15° \mathring{N} 49'03	0°29'15
opposition	4044 Jan 19 16:42	29° \mathring{S} 03'22	0°-56'-35	max. Earth dist.	4051 Aug 06 12:03	15° \mathring{N} 49'24	30.91963 AU
min. Earth dist.	4044 Jan 19 08:11	29° \mathring{S} 03'58	28.86484 AU	retrograde	4051 Nov 20 03:59	18° \mathring{N} 20'57	
direct	4044 Apr 06 16:40	27° \mathring{S} 38'59		opposition	4052 Feb 06 05:47	16° \mathring{N} 56'51	0°-29'-27
	4044 Jul 15 23:28	0° \mathring{N}		min. Earth dist.	4052 Feb 06 03:04	16° \mathring{N} 57'02	28.92541 AU
				direct	4052 Apr 24 15:15	15° \mathring{N} 32'13	
conjunction	4044 Jul 20 06:24	0° \mathring{N} 09'36	0°-51'-28				
minimum elong	4044 Jul 20 06:24	0° \mathring{N} 09'37	0°51'29	conjunction	4052 Aug 07 22:08	18° \mathring{N} 03'16	0°-25'-51
max. Earth dist.	4044 Jul 20 14:27	0° \mathring{N} 10'21	30.86674 AU	minimum elong	4052 Aug 07 22:08	18° \mathring{N} 03'16	0°25'53
retrograde	4044 Nov 03 15:04	2° \mathring{N} 42'32		max. Earth dist.	4052 Aug 08 01:02	18° \mathring{N} 03'32	30.93105 AU
opposition	4045 Jan 21 03:32	1° \mathring{N} 17'58	0°-53'-25	retrograde	4052 Nov 21 17:48	20° \mathring{N} 35'03	
min. Earth dist.	4045 Jan 20 20:45	1° \mathring{N} 18'27	28.86925 AU	opposition	4053 Feb 07 16:11	19° \mathring{N} 11'03	0°-25'-48
	4045 Mar 20 13:35	30° \mathring{R} \mathring{S}		min. Earth dist.	4053 Feb 07 13:27	19° \mathring{N} 11'15	28.93663 AU
direct	4045 Apr 09 02:48	29° \mathring{S} 53'31		direct	4053 Apr 27 03:33	17° \mathring{N} 46'25	
	4045 Apr 28 16:00	0° \mathring{N}					
conjunction	4045 Jul 22 20:35	2° \mathring{N} 24'09	0°-48'-29	conjunction	4053 Aug 10 12:09	20° \mathring{N} 17'33	0°-22'-26
minimum elong	4045 Jul 22 20:35	2° \mathring{N} 24'09	0°48'29	minimum elong	4053 Aug 10 12:09	20° \mathring{N} 17'33	0°22'26
max. Earth dist.	4045 Jul 23 04:36	2° \mathring{N} 24'54	30.87130 AU	max. Earth dist.	4053 Aug 10 13:41	20° \mathring{N} 17'42	30.94196 AU
retrograde	4045 Nov 06 02:09	4° \mathring{N} 56'54		retrograde	4053 Nov 24 04:18	22° \mathring{N} 49'13	
opposition	4046 Jan 23 14:15	3° \mathring{N} 32'22	0°-50'-12	opposition	4054 Feb 10 02:52	21° \mathring{N} 25'18	0°-22'-7
min. Earth dist.	4046 Jan 23 07:24	3° \mathring{N} 32'51	28.87391 AU	min. Earth dist.	4054 Feb 10 01:58	21° \mathring{N} 25'22	28.94727 AU
direct	4046 Apr 11 16:01	2° \mathring{N} 07'51		direct	4054 Apr 29 13:34	20° \mathring{N} 00'40	
conjunction	4046 Jul 25 10:24	4° \mathring{N} 38'31	0°-45'-25	conjunction	4054 Aug 13 02:05	22° \mathring{N} 31'50	0°-18'-58
minimum elong	4046 Jul 25 10:24	4° \mathring{N} 38'31	0°45'27	minimum elong	4054 Aug 13 02:05	22° \mathring{N} 31'50	0°19'00
max. Earth dist.	4046 Jul 25 16:45	4° \mathring{N} 39'06	30.87633 AU	max. Earth dist.	4054 Aug 13 03:11	22° \mathring{N} 31'56	30.95217 AU
retrograde	4046 Nov 08 14:13	7° \mathring{N} 11'07		retrograde	4054 Nov 26 15:04	25° \mathring{N} 03'20	
opposition	4047 Jan 26 01:00	5° \mathring{N} 46'36	0°-46'-54	opposition	4055 Feb 12 13:22	23° \mathring{N} 39'29	0°-18'-24
min. Earth dist.	4047 Jan 25 19:05	5° \mathring{N} 47'01	28.87942 AU	min. Earth dist.	4055 Feb 12 12:48	23° \mathring{N} 39'32	28.95687 AU
direct	4047 Apr 14 02:48	4° \mathring{N} 22'00		direct	4055 May 02 02:36	22° \mathring{N} 14'49	
conjunction	4047 Jul 28 00:31	6° \mathring{N} 52'43	0°-42'-18	conjunction	4055 Aug 15 16:02	24° \mathring{N} 46'01	0°-15'-30
minimum elong	4047 Jul 28 00:31	6° \mathring{N} 52'43	0°42'19	minimum elong	4055 Aug 15 16:03	24° \mathring{N} 46'01	0°15'30
max. Earth dist.	4047 Jul 28 07:20	6° \mathring{N} 53'21	30.88234 AU	behind sun begin	4055 Aug 15 14:51	24° \mathring{N} 45'55	
retrograde	4047 Nov 11 01:24	9° \mathring{N} 25'09		behind sun end	4055 Aug 15 17:14	24° \mathring{N} 46'07	
opposition	4048 Jan 28 11:31	8° \mathring{N} 00'41	0°-43'-32	max. Earth dist.	4055 Aug 15 14:59	24° \mathring{N} 45'55	30.96132 AU
min. Earth dist.	4048 Jan 28 06:07	8° \mathring{N} 01'04	28.88595 AU	retrograde	4055 Nov 29 02:34	27° \mathring{N} 17'21	
direct	4048 Apr 15 14:57	6° \mathring{N} 36'03		opposition	4056 Feb 14 23:49	25° \mathring{N} 53'33	0°-14'-40
				min. Earth dist.	4056 Feb 15 00:34	25° \mathring{N} 53'30	28.96565 AU

direct	4056 May 03 12:37	24°Ω28'49		minimum elong	4062 Aug 31 15:12	10°♍19'49	0°09'12
				behind sun begin	4062 Aug 31 09:40	10°♍19'20	
conjunction	4056 Aug 17 06:05	27°Ω00'03	0°-12'00	behind sun end	4062 Aug 31 20:45	10°♍20'19	
minimum elong	4056 Aug 17 06:04	27°Ω00'03	0°12'02	max. Earth dist.	4062 Aug 31 09:12	10°♍19'17	31.02516 AU
behind sun begin	4056 Aug 17 01:39	26°Ω59'39		retrograde	4062 Dec 14 09:36	12°♍49'54	
behind sun end	4056 Aug 17 10:29	27°Ω00'26		opposition	4063 Mar 01 23:58	11°♍26'25	0°11'39
max. Earth dist.	4056 Aug 17 04:59	26°Ω59'57	30.96971 AU	min. Earth dist.	4063 Mar 02 05:27	11°♍26'02	29.03149 AU
retrograde	4056 Nov 30 12:46	29°Ω31'11		direct	4063 May 20 01:56	10°♍01'26	
opposition	4057 Feb 16 10:17	28°Ω07'26	0°-10'-55				
min. Earth dist.	4057 Feb 16 11:55	28°Ω07'19	28.97367 AU	conjunction	4063 Sep 03 04:41	12°♍32'43	0°12'41
direct	4057 May 06 00:43	26°Ω42'39		minimum elong	4063 Sep 03 04:41	12°♍32'43	0°12'42
				behind sun begin	4063 Sep 03 00:37	12°♍32'22	
conjunction	4057 Aug 19 19:37	29°Ω13'51	0°-8'-30	behind sun end	4063 Sep 03 08:44	12°♍33'05	
minimum elong	4057 Aug 19 19:38	29°Ω13'51	0°08'30	max. Earth dist.	4063 Sep 02 22:37	12°♍32'11	31.03794 AU
behind sun begin	4057 Aug 19 13:53	29°Ω13'21		retrograde	4063 Dec 16 20:27	15°♍02'40	
behind sun end	4057 Aug 20 01:22	29°Ω14'22		opposition	4064 Mar 03 10:05	13°♍39'18	0°15'22
max. Earth dist.	4057 Aug 19 16:33	29°Ω13'36	30.97764 AU	min. Earth dist.	4064 Mar 03 15:38	13°♍38'55	29.04447 AU
	4057 Sep 09 19:35	0°♍		direct	4064 May 21 14:22	12°♍14'21	
retrograde	4057 Dec 03 00:39	1°♍44'49					
opposition	4058 Feb 18 20:38	0°♍21'05	0°-7'-9	conjunction	4064 Sep 04 18:01	14°♍45'42	0°16'10
min. Earth dist.	4058 Feb 18 22:44	0°♍20'56	28.98158 AU	minimum elong	4064 Sep 04 18:01	14°♍45'42	0°16'10
	4058 Mar 03 09:57	30°♍Ω		max. Earth dist.	4064 Sep 04 10:17	14°♍45'00	31.05107 AU
direct	4058 May 08 13:02	28°Ω56'14		retrograde	4064 Dec 18 08:00	17°♍15'32	
	4058 Jul 11 15:08	0°♍		opposition	4065 Mar 05 20:26	15°♍52'16	0°19'05
				min. Earth dist.	4065 Mar 06 03:02	15°♍51'48	29.05767 AU
conjunction	4058 Aug 22 09:25	1°♍27'27	0°-4'-59	direct	4065 May 23 23:52	14°♍27'21	
minimum elong	4058 Aug 22 09:24	1°♍27'27	0°05'01				
behind sun begin	4058 Aug 22 03:00	1°♍26'53		conjunction	4065 Sep 07 07:20	16°♍58'45	0°19'37
behind sun end	4058 Aug 22 15:49	1°♍28'01		minimum elong	4065 Sep 07 07:19	16°♍58'45	0°19'37
max. Earth dist.	4058 Aug 22 06:35	1°♍27'13	30.98554 AU	max. Earth dist.	4065 Sep 06 23:44	16°♍58'03	31.06397 AU
retrograde	4058 Dec 05 10:52	3°♍58'12		retrograde	4065 Dec 20 17:51	19°♍28'28	
opposition	4059 Feb 21 06:55	2°♍34'30	0°-3'-23	opposition	4066 Mar 08 06:49	18°♍05'19	0°22'46
min. Earth dist.	4059 Feb 21 10:24	2°♍34'15	28.98964 AU	min. Earth dist.	4066 Mar 08 14:21	18°♍04'47	29.07016 AU
direct	4059 May 11 01:49	1°♍09'35		direct	4066 May 26 11:37	16°♍40'25	
conjunction	4059 Aug 24 22:57	3°♍40'48	0°-1'-27	conjunction	4066 Sep 09 20:37	19°♍11'50	0°23'02
minimum elong	4059 Aug 24 22:58	3°♍40'48	0°01'27	minimum elong	4066 Sep 09 20:36	19°♍11'50	0°23'02
behind sun begin	4059 Aug 24 16:22	3°♍40'13		max. Earth dist.	4066 Sep 09 10:50	19°♍10'56	31.07599 AU
behind sun end	4059 Aug 25 05:34	3°♍41'23		retrograde	4066 Dec 23 05:28	21°♍41'26	
max. Earth dist.	4059 Aug 24 18:33	3°♍40'26	30.99393 AU	opposition	4067 Mar 10 17:03	20°♍18'22	0°26'24
retrograde	4059 Dec 07 23:27	6°♍11'22		min. Earth dist.	4067 Mar 11 01:12	20°♍17'47	29.08169 AU
asc. node	4060 Jan 18 19:30	5°♍43'17		direct	4067 May 28 23:05	18°♍53'28	
opposition	4060 Feb 23 17:07	4°♍47'41	0°00'22				
min. Earth dist.	4060 Feb 23 20:19	4°♍47'28	28.99839 AU	conjunction	4067 Sep 12 10:04	21°♍24'56	0°26'25
direct	4060 May 12 14:22	3°♍22'43		minimum elong	4067 Sep 12 10:04	21°♍24'56	0°26'26
				max. Earth dist.	4067 Sep 12 00:16	21°♍24'02	31.08679 AU
conjunction	4060 Aug 26 12:30	5°♍53'56	0°02'11	retrograde	4067 Dec 25 15:25	23°♍54'23	
minimum elong	4060 Aug 26 12:30	5°♍53'56	0°02'10	opposition	4068 Mar 12 03:31	22°♍31'23	0°30'00
behind sun begin	4060 Aug 26 05:54	5°♍53'21		min. Earth dist.	4068 Mar 12 13:18	22°♍30'41	29.09185 AU
behind sun end	4060 Aug 26 19:06	5°♍54'31		direct	4068 May 30 11:19	21°♍06'28	
max. Earth dist.	4060 Aug 26 07:58	5°♍53'33	31.00304 AU				
retrograde	4060 Dec 09 10:31	8°♍24'19		conjunction	4068 Sep 13 23:11	23°♍37'56	0°29'46
opposition	4061 Feb 25 03:27	7°♍00'41	0°04'08	minimum elong	4068 Sep 13 23:11	23°♍37'56	0°29'46
min. Earth dist.	4061 Feb 25 08:04	7°♍00'22	29.00813 AU	max. Earth dist.	4068 Sep 13 11:29	23°♍36'52	31.09637 AU
direct	4061 May 15 02:27	5°♍35'42		retrograde	4068 Dec 27 03:38	26°♍07'15	
				opposition	4069 Mar 14 13:48	24°♍44'18	0°33'33
conjunction	4061 Aug 29 01:55	8°♍06'55	0°05'42	min. Earth dist.	4069 Mar 14 23:31	24°♍43'37	29.10090 AU
minimum elong	4061 Aug 29 01:54	8°♍06'55	0°05'43	direct	4069 Jun 01 23:38	23°♍19'21	
behind sun begin	4061 Aug 28 19:36	8°♍06'22					
behind sun end	4061 Aug 29 08:13	8°♍07'29		conjunction	4069 Sep 16 12:19	25°♍50'50	0°33'04
max. Earth dist.	4061 Aug 28 20:38	8°♍06'27	31.01349 AU	minimum elong	4069 Sep 16 12:19	25°♍50'50	0°33'04
retrograde	4061 Dec 11 23:14	10°♍37'08		max. Earth dist.	4069 Sep 16 00:15	25°♍49'43	31.10487 AU
opposition	4062 Feb 27 13:37	9°♍13'34	0°07'54	retrograde	4069 Dec 29 14:31	28°♍19'59	
min. Earth dist.	4062 Feb 27 17:43	9°♍13'17	29.01919 AU	opposition	4070 Mar 17 00:09	26°♍57'04	0°37'02
direct	4062 May 17 15:32	7°♍48'34		min. Earth dist.	4070 Mar 17 11:38	26°♍56'15	29.10909 AU
				direct	4070 Jun 04 12:15	25°♍32'06	
conjunction	4062 Aug 31 15:12	10°♍19'49	0°09'12				

conjunction	4070 Sep 19 01:13	28° \mathring{M} 03'33	0°36'18	direct	4078 Jun 22 09:38	13° \mathring{M} 08'51	
minimum elong	4070 Sep 19 01:13	28° \mathring{M} 03'33	0°36'18				
max. Earth dist.	4070 Sep 18 12:06	28° \mathring{M} 02'21	31.11281 AU	conjunction	4078 Oct 07 05:13	15° \mathring{M} 40'15	0°59'51
	4070 Nov 17 17:59	0° \mathring{M}		minimum elong	4078 Oct 07 05:13	15° \mathring{M} 40'15	0°59'52
retrograde	4071 Jan 01 02:44	0° \mathring{M} 32'32		max. Earth dist.	4078 Oct 06 12:24	15° \mathring{M} 38'42	31.19038 AU
	4071 Feb 15 06:34	30° \mathring{R} \mathring{M}		retrograde	4079 Jan 18 11:52	18° \mathring{M} 08'14	
opposition	4071 Mar 19 10:22	29° \mathring{M} 09'39	0°40'28	opposition	4079 Apr 05 20:39	16° \mathring{M} 45'46	1°05'19
min. Earth dist.	4071 Mar 19 21:37	29° \mathring{M} 08'51	29.11675 AU	min. Earth dist.	4079 Apr 06 12:39	16° \mathring{M} 44'40	29.19587 AU
direct	4071 Jun 07 02:18	27° \mathring{M} 44'38		direct	4079 Jun 24 21:59	15° \mathring{M} 20'47	
	4071 Sep 14 08:23	0° \mathring{M}					
conjunction	4071 Sep 21 14:05	0° \mathring{M} 16'05	0°39'29	conjunction	4079 Oct 09 17:30	17° \mathring{M} 52'10	1°02'27
minimum elong	4071 Sep 21 14:05	0° \mathring{M} 16'05	0°39'30	minimum elong	4079 Oct 09 17:30	17° \mathring{M} 52'10	1°02'27
max. Earth dist.	4071 Sep 21 00:08	0° \mathring{M} 14'47	31.12031 AU	max. Earth dist.	4079 Oct 08 23:38	17° \mathring{M} 50'31	31.20006 AU
retrograde	4072 Jan 03 12:29	2° \mathring{M} 44'54		retrograde	4080 Jan 20 23:26	20° \mathring{M} 20'02	
opposition	4072 Mar 20 20:35	1° \mathring{M} 22'01	0°43'51	opposition	4080 Apr 07 07:01	18° \mathring{M} 57'37	1°08'02
min. Earth dist.	4072 Mar 21 09:17	1° \mathring{M} 21'08	29.12443 AU	min. Earth dist.	4080 Apr 07 22:48	18° \mathring{M} 56'32	29.20489 AU
	4072 May 25 22:09	30° \mathring{R} \mathring{M}		direct	4080 Jun 26 11:39	17° \mathring{M} 32'38	
direct	4072 Jun 08 13:25	29° \mathring{M} 56'59		max. Earth dist.	4080 Oct 10 10:59	20° \mathring{M} 02'16	31.20838 AU
	4072 Jun 22 01:52	0° \mathring{M}					
conjunction	4072 Sep 23 02:49	2° \mathring{M} 28'24	0°42'37	conjunction	4080 Oct 11 05:43	20° \mathring{M} 04'00	1°04'56
minimum elong	4072 Sep 23 02:49	2° \mathring{M} 28'24	0°42'37	minimum elong	4080 Oct 11 05:43	20° \mathring{M} 04'00	1°04'56
max. Earth dist.	4072 Sep 22 12:56	2° \mathring{M} 27'07	31.12816 AU	retrograde	4081 Jan 22 09:46	22° \mathring{M} 31'45	
retrograde	4073 Jan 04 22:55	4° \mathring{M} 57'03		opposition	4081 Apr 09 17:37	21° \mathring{M} 09'23	1°10'39
opposition	4073 Mar 23 06:50	3° \mathring{M} 34'12	0°47'09	min. Earth dist.	4081 Apr 10 10:49	21° \mathring{M} 08'11	29.21275 AU
min. Earth dist.	4073 Mar 23 19:20	3° \mathring{M} 33'20	29.13254 AU	direct	4081 Jun 28 22:48	19° \mathring{M} 44'23	
direct	4073 Jun 11 02:36	2° \mathring{M} 09'08					
conjunction	4073 Sep 25 15:11	4° \mathring{M} 40'31	0°45'40	conjunction	4081 Oct 13 17:43	22° \mathring{M} 15'42	1°07'20
minimum elong	4073 Sep 25 15:11	4° \mathring{M} 40'31	0°45'40	minimum elong	4081 Oct 13 17:43	22° \mathring{M} 15'42	1°07'20
max. Earth dist.	4073 Sep 25 00:06	4° \mathring{M} 39'08	31.13666 AU	max. Earth dist.	4081 Oct 12 22:54	22° \mathring{M} 13'58	31.21563 AU
retrograde	4074 Jan 07 09:49	7° \mathring{M} 09'02		retrograde	4082 Jan 24 20:13	24° \mathring{M} 43'20	
opposition	4074 Mar 25 17:07	5° \mathring{M} 46'14	0°50'23	opposition	4082 Apr 12 04:04	23° \mathring{M} 20'59	1°13'09
min. Earth dist.	4074 Mar 26 06:06	5° \mathring{M} 45'19	29.14169 AU	min. Earth dist.	4082 Apr 12 21:21	23° \mathring{M} 19'47	29.21936 AU
direct	4074 Jun 13 12:40	4° \mathring{M} 21'08		direct	4082 Jul 01 12:38	21° \mathring{M} 55'58	
				max. Earth dist.	4082 Oct 15 09:24	24° \mathring{M} 25'23	31.22175 AU
conjunction	4074 Sep 28 03:46	6° \mathring{M} 52'31	0°48'40	conjunction	4082 Oct 16 05:40	24° \mathring{M} 27'15	1°09'38
minimum elong	4074 Sep 28 03:46	6° \mathring{M} 52'31	0°48'39	minimum elong	4082 Oct 16 05:39	24° \mathring{M} 27'15	1°09'38
max. Earth dist.	4074 Sep 27 13:19	6° \mathring{M} 51'10	31.14631 AU	retrograde	4083 Jan 27 06:58	26° \mathring{M} 54'45	
retrograde	4075 Jan 09 18:13	9° \mathring{M} 20'53		opposition	4083 Apr 14 14:24	25° \mathring{M} 32'25	1°15'33
opposition	4075 Mar 28 03:16	7° \mathring{M} 58'09	0°53'32	min. Earth dist.	4083 Apr 15 08:23	25° \mathring{M} 31'10	29.22521 AU
min. Earth dist.	4075 Mar 28 16:43	7° \mathring{M} 57'12	29.15183 AU	direct	4083 Jul 03 23:36	24° \mathring{M} 07'22	
direct	4075 Jun 16 00:48	6° \mathring{M} 33'04					
conjunction	4075 Sep 30 16:11	9° \mathring{M} 04'26	0°51'35	conjunction	4083 Oct 18 17:36	26° \mathring{M} 38'37	1°11'50
minimum elong	4075 Sep 30 16:11	9° \mathring{M} 04'26	0°51'35	minimum elong	4083 Oct 18 17:36	26° \mathring{M} 38'37	1°11'50
max. Earth dist.	4075 Sep 30 00:14	9° \mathring{M} 02'58	31.15699 AU	max. Earth dist.	4083 Oct 17 21:54	26° \mathring{M} 36'47	31.22726 AU
retrograde	4076 Jan 12 04:40	11° \mathring{M} 32'42		retrograde	4084 Jan 29 15:07	29° \mathring{M} 05'59	
opposition	4076 Mar 29 13:31	10° \mathring{M} 10'02	0°56'37	opposition	4084 Apr 16 00:55	27° \mathring{M} 43'40	1°17'51
min. Earth dist.	4076 Mar 30 02:55	10° \mathring{M} 09'06	29.16297 AU	min. Earth dist.	4084 Apr 16 19:28	27° \mathring{M} 42'22	29.23052 AU
direct	4076 Jun 17 11:18	8° \mathring{M} 44'59		direct	4084 Jul 05 12:24	26° \mathring{M} 18'36	
				max. Earth dist.	4084 Oct 19 08:02	28° \mathring{M} 47'50	31.23257 AU
conjunction	4076 Oct 02 04:34	11° \mathring{M} 16'22	0°54'25	conjunction	4084 Oct 20 05:03	28° \mathring{M} 49'47	1°13'55
minimum elong	4076 Oct 02 04:34	11° \mathring{M} 16'22	0°54'25	minimum elong	4084 Oct 20 05:03	28° \mathring{M} 49'47	1°13'55
max. Earth dist.	4076 Oct 01 13:19	11° \mathring{M} 14'57	31.16829 AU	retrograde	4084 Nov 21 23:23	0° \mathring{M}	
retrograde	4077 Jan 13 13:54	13° \mathring{M} 44'32			4085 Jan 31 00:59	1° \mathring{M} 17'03	
opposition	4077 Mar 31 23:55	12° \mathring{M} 21'57	0°59'36	opposition	4085 Apr 15 07:17	30° \mathring{R} \mathring{M}	
min. Earth dist.	4077 Apr 01 14:33	12° \mathring{M} 20'55	29.17438 AU	min. Earth dist.	4085 Apr 18 11:20	29° \mathring{M} 54'44	1°20'01
direct	4077 Jun 19 22:06	10° \mathring{M} 56'55		direct	4085 Apr 19 05:34	29° \mathring{M} 53'28	29.23607 AU
					4085 Jul 07 23:03	28° \mathring{M} 29'38	
conjunction	4077 Oct 04 16:50	13° \mathring{M} 28'18	0°57'11		4085 Sep 24 14:34	0° \mathring{M}	
minimum elong	4077 Oct 04 16:50	13° \mathring{M} 28'18	0°57'11	conjunction	4085 Oct 22 16:38	1° \mathring{M} 00'47	1°15'54
max. Earth dist.	4077 Oct 04 00:10	13° \mathring{M} 26'46	31.17968 AU	minimum elong	4085 Oct 22 16:38	1° \mathring{M} 00'47	1°15'54
retrograde	4078 Jan 16 01:29	15° \mathring{M} 56'23		max. Earth dist.	4085 Oct 21 20:38	0° \mathring{M} 58'55	31.23829 AU
opposition	4078 Apr 03 10:07	14° \mathring{M} 33'52	1°02'31	retrograde	4086 Feb 02 09:28	3° \mathring{M} 27'57	
min. Earth dist.	4078 Apr 04 00:27	14° \mathring{M} 32'52	29.18559 AU	opposition	4086 Apr 20 21:48	2° \mathring{M} 05'39	1°22'05
				min. Earth dist.	4086 Apr 21 16:55	2° \mathring{M} 04'19	29.24224 AU

direct	4086 Jul 10 09:34	0°M40'34		direct	4094 Jul 28 08:48	18°M09'00	
max. Earth dist.	4086 Oct 24 07:06	3°M09'43	31.24498 AU				
conjunction	4086 Oct 25 03:58	3°M11'39	1°17'46	conjunction	4094 Nov 11 21:12	20°M39'55	1°28'31
minimum elong	4086 Oct 25 03:58	3°M11'39	1°17'47	minimum elong	4094 Nov 11 21:12	20°M39'55	1°28'31
retrograde	4087 Feb 04 20:13	5°M38'45		max. Earth dist.	4094 Nov 10 23:36	20°M37'55	31.30355 AU
opposition	4087 Apr 23 08:13	4°M16'30	1°24'01	retrograde	4095 Feb 22 05:33	23°M06'39	
min. Earth dist.	4087 Apr 24 02:19	4°M15'14	29.24947 AU	opposition	4095 May 10 22:19	21°M44'44	1°34'58
direct	4087 Jul 12 20:53	2°M51'25		min. Earth dist.	4095 May 11 19:20	21°M43'17	29.30613 AU
				direct	4095 Jul 30 19:56	20°M19'56	
				max. Earth dist.	4095 Nov 13 09:26	22°M48'40	31.30662 AU
conjunction	4087 Oct 27 15:20	5°M22'31	1°19'32				
minimum elong	4087 Oct 27 15:20	5°M22'31	1°19'32	conjunction	4095 Nov 14 07:57	22°M50'46	1°29'18
max. Earth dist.	4087 Oct 26 19:03	5°M20'38	31.25266 AU	minimum elong	4095 Nov 14 07:57	22°M50'46	1°29'18
retrograde	4088 Feb 07 06:08	7°M49'34		retrograde	4096 Feb 24 15:23	25°M17'26	
opposition	4088 Apr 24 18:51	6°M27'21	1°25'50	opposition	4096 May 12 09:12	23°M55'30	1°35'45
min. Earth dist.	4088 Apr 25 13:54	6°M26'01	29.25772 AU	min. Earth dist.	4096 May 13 05:19	23°M54'07	29.30877 AU
direct	4088 Jul 14 08:31	5°M02'20		direct	4096 Aug 01 07:50	22°M30'41	
max. Earth dist.	4088 Oct 28 06:03	7°M31'30	31.26139 AU				
conjunction	4088 Oct 29 02:33	7°M33'24	1°21'11	conjunction	4096 Nov 15 18:41	25°M01'26	1°29'57
minimum elong	4088 Oct 29 02:33	7°M33'24	1°21'11	minimum elong	4096 Nov 15 18:41	25°M01'26	1°29'58
retrograde	4089 Feb 08 17:27	10°M00'25		max. Earth dist.	4096 Nov 14 20:40	24°M59'23	31.30891 AU
opposition	4089 Apr 27 05:22	8°M38'16	1°27'32	retrograde	4097 Feb 26 00:25	27°M28'02	
min. Earth dist.	4089 Apr 27 23:35	8°M37'00	29.26667 AU	opposition	4097 May 14 20:14	26°M06'04	1°36'23
direct	4089 Jul 16 21:06	7°M13'18		min. Earth dist.	4097 May 15 17:19	26°M04'37	29.31102 AU
				direct	4097 Aug 03 18:54	24°M41'15	
				max. Earth dist.	4097 Nov 17 07:10	27°M09'51	31.31121 AU
conjunction	4089 Oct 31 13:38	9°M44'23	1°22'42				
minimum elong	4089 Oct 31 13:38	9°M44'23	1°22'42	conjunction	4097 Nov 18 05:07	27°M11'54	1°30'29
max. Earth dist.	4089 Oct 30 16:54	9°M42'28	31.27041 AU	minimum elong	4097 Nov 18 05:07	27°M11'54	1°30'29
retrograde	4090 Feb 11 04:01	12°M11'23		retrograde	4098 Feb 28 10:41	29°M38'26	
opposition	4090 Apr 29 16:04	10°M49'18	1°29'06	opposition	4098 May 17 07:10	28°M16'27	1°36'53
min. Earth dist.	4090 Apr 30 11:18	10°M47'58	29.27573 AU	min. Earth dist.	4098 May 18 03:10	28°M15'05	29.31338 AU
direct	4090 Jul 19 07:37	9°M24'24		direct	4098 Aug 06 07:07	26°M51'36	
max. Earth dist.	4090 Nov 02 04:29	11°M53'35	31.27922 AU				
conjunction	4090 Nov 03 00:54	11°M55'28	1°24'07	conjunction	4098 Nov 20 15:35	29°M22'12	1°30'54
minimum elong	4090 Nov 03 00:54	11°M55'28	1°24'07	minimum elong	4098 Nov 20 15:35	29°M22'12	1°30'53
retrograde	4091 Feb 13 15:00	14°M22'25		max. Earth dist.	4098 Nov 19 17:39	29°M20'09	31.31378 AU
opposition	4091 May 02 02:42	13°M00'24	1°30'32		4098 Dec 07 17:07	0°M	
min. Earth dist.	4091 May 02 21:50	12°M59'05	29.28412 AU	retrograde	4099 Mar 02 21:01	1°M48'42	
direct	4091 Jul 21 21:33	11°M35'34		opposition	4099 May 19 18:10	0°M26'42	1°37'15
				min. Earth dist.	4099 May 20 14:35	0°M25'18	29.31645 AU
					4099 Jun 05 06:19	30°M	
conjunction	4091 Nov 05 12:03	14°M06'37	1°25'24	direct	4099 Aug 08 17:54	29°M01'52	
minimum elong	4091 Nov 05 12:03	14°M06'37	1°25'24		4099 Oct 09 13:07	0°M	
max. Earth dist.	4091 Nov 04 14:28	14°M04'37	31.28712 AU	max. Earth dist.	4099 Nov 22 05:08	1°M30'28	31.31732 AU
	4091 Nov 29 21:53	15°M					
retrograde	4092 Feb 16 02:29	16°M33'32		conjunction	4099 Nov 23 02:01	1°M32'24	1°31'10
opposition	4092 May 03 13:34	15°M11'34	1°31'51	minimum elong	4099 Nov 23 02:01	1°M32'24	1°31'10
min. Earth dist.	4092 May 04 09:05	15°M10'13	29.29161 AU	retrograde	4100 Mar 05 07:33	3°M58'53	
	4092 May 10 14:09	15°M		opposition	4100 May 22 05:18	2°M36'54	1°37'28
direct	4092 Jul 23 08:58	13°M46'45		min. Earth dist.	4100 May 23 00:55	2°M35'34	29.32034 AU
	4092 Oct 01 08:14	15°M		direct	4100 Aug 11 07:35	1°M12'07	
conjunction	4092 Nov 06 23:07	16°M17'47	1°26'34				
minimum elong	4092 Nov 06 23:07	16°M17'47	1°26'34	conjunction	4100 Nov 25 12:09	3°M42'37	1°31'18
max. Earth dist.	4092 Nov 06 02:15	16°M15'51	31.29392 AU	minimum elong	4100 Nov 25 12:09	3°M42'37	1°31'19
retrograde	4093 Feb 17 10:44	18°M44'38		max. Earth dist.	4100 Nov 24 14:48	3°M40'37	31.32165 AU
opposition	4093 May 06 00:33	17°M22'43	1°33'01				
min. Earth dist.	4093 May 06 20:38	17°M21'19	29.29772 AU				
direct	4093 Jul 25 21:47	15°M57'56					
max. Earth dist.	4093 Nov 08 11:47	18°M26'50	31.29939 AU				
conjunction	4093 Nov 09 10:06	18°M28'54	1°27'36				
minimum elong	4093 Nov 09 10:06	18°M28'54	1°27'36				
retrograde	4094 Feb 19 20:49	20°M55'41					
opposition	4094 May 08 11:16	19°M33'47	1°34'04				
min. Earth dist.	4094 May 09 07:09	19°M32'25	29.30260 AU				

retrograde	4100 Mar 05 07:33	3°♂58'53		opposition	4108 Jun 09 00:32	20°♂01'38	1°34'13
opposition	4100 May 22 05:18	2°♂36'54	1°37'28	min. Earth dist.	4108 Jun 09 19:50	20°♂00'19	29.33778 AU
min. Earth dist.	4100 May 23 00:55	2°♂35'34	29.32034 AU	direct	4108 Aug 29 01:29	18°♂37'13	
direct	4100 Aug 11 07:35	1°♂12'07					
				conjunction	4108 Dec 12 21:22	21°♂07'22	1°27'44
conjunction	4100 Nov 25 12:09	3°♂42'37	1°31'18	minimum elong	4108 Dec 12 21:22	21°♂07'22	1°27'45
minimum elong	4100 Nov 25 12:09	3°♂42'37	1°31'19	max. Earth dist.	4108 Dec 12 01:59	21°♂05'33	31.33541 AU
max. Earth dist.	4100 Nov 24 14:48	3°♂40'37	31.32165 AU	retrograde	4109 Mar 25 04:02	23°♂34'05	
retrograde	4101 Mar 07 19:01	6°♂09'06		opposition	4109 Jun 11 12:09	22°♂12'12	1°33'12
opposition	4101 May 24 16:25	4°♂47'09	1°37'33	min. Earth dist.	4109 Jun 12 06:51	22°♂10'56	29.33457 AU
min. Earth dist.	4101 May 25 11:43	4°♂45'50	29.32505 AU	direct	4109 Aug 31 15:23	20°♂47'47	
direct	4101 Aug 13 18:38	3°♂22'26		max. Earth dist.	4109 Dec 14 11:12	23°♂15'59	31.33200 AU
conjunction	4101 Nov 27 22:29	5°♂52'54	1°31'19	conjunction	4109 Dec 15 07:08	23°♂17'51	1°26'43
minimum elong	4101 Nov 27 22:29	5°♂52'54	1°31'19	minimum elong	4109 Dec 15 07:08	23°♂17'51	1°26'43
max. Earth dist.	4101 Nov 27 02:27	5°♂51'02	31.32652 AU	retrograde	4110 Mar 27 15:28	25°♂44'35	
retrograde	4102 Mar 10 03:46	8°♂19'25		opposition	4110 Jun 13 23:37	24°♂22'38	1°32'03
opposition	4102 May 27 03:31	6°♂57'31	1°37'29	min. Earth dist.	4110 Jun 14 17:54	24°♂21'24	29.33115 AU
min. Earth dist.	4102 May 27 23:02	6°♂56'11	29.32985 AU	direct	4110 Sep 03 02:39	22°♂58'12	
direct	4102 Aug 16 07:00	5°♂32'52					
max. Earth dist.	4102 Nov 29 11:44	8°♂01'22	31.33126 AU	conjunction	4110 Dec 17 16:58	25°♂28'12	1°25'35
				minimum elong	4110 Dec 17 16:58	25°♂28'12	1°25'36
conjunction	4102 Nov 30 08:42	8°♂03'20	1°31'12	max. Earth dist.	4110 Dec 16 22:38	25°♂26'29	31.32863 AU
minimum elong	4102 Nov 30 08:42	8°♂03'20	1°31'12	retrograde	4111 Mar 30 00:14	27°♂54'56	
retrograde	4103 Mar 12 14:38	10°♂29'52		opposition	4111 Jun 16 11:23	26°♂32'57	1°30'46
opposition	4103 May 29 14:47	9°♂08'01	1°37'17	min. Earth dist.	4111 Jun 17 05:25	26°♂31'43	29.32795 AU
min. Earth dist.	4103 May 30 09:37	9°♂06'44	29.33435 AU	direct	4111 Sep 05 15:31	25°♂08'31	
direct	4103 Aug 18 18:04	7°♂43'26		max. Earth dist.	4111 Dec 19 07:48	27°♂36'41	31.32586 AU
conjunction	4103 Dec 02 18:56	10°♂13'53	1°30'56	conjunction	4111 Dec 20 02:26	27°♂38'25	1°24'20
minimum elong	4103 Dec 02 18:56	10°♂13'53	1°30'56	minimum elong	4111 Dec 20 02:27	27°♂38'25	1°24'20
max. Earth dist.	4103 Dec 01 23:07	10°♂12'02	31.33526 AU		4112 Mar 13 21:54	0°♂	
retrograde	4104 Mar 13 23:55	12°♂40'28		retrograde	4112 Mar 31 11:16	0°♂05'12	
opposition	4104 May 31 02:19	11°♂18'39	1°36'57		4112 Apr 18 03:27	30°♂	
min. Earth dist.	4104 May 31 22:01	11°♂17'18	29.33785 AU	opposition	4112 Jun 17 23:05	28°♂43'11	1°29'22
direct	4104 Aug 20 05:07	9°♂54'08		min. Earth dist.	4112 Jun 18 15:41	28°♂42'03	29.32563 AU
max. Earth dist.	4104 Dec 03 08:37	12°♂22'37	31.33823 AU	direct	4112 Sep 07 03:46	27°♂18'46	
conjunction	4104 Dec 04 05:05	12°♂24'32	1°30'33	conjunction	4112 Dec 21 12:07	29°♂48'37	1°22'57
minimum elong	4104 Dec 04 05:05	12°♂24'32	1°30'34	minimum elong	4112 Dec 21 12:08	29°♂48'37	1°22'58
retrograde	4105 Mar 16 10:16	14°♂51'10		max. Earth dist.	4112 Dec 20 19:08	29°♂47'02	31.32397 AU
opposition	4105 Jun 02 13:41	13°♂29'23	1°36'28		4112 Dec 26 13:37	0°♂	
min. Earth dist.	4105 Jun 03 08:20	13°♂28'06	29.34013 AU	retrograde	4113 Apr 02 20:49	2°♂15'27	
direct	4105 Aug 22 16:34	12°♂04'55		opposition	4113 Jun 20 10:50	0°♂53'25	1°27'50
				min. Earth dist.	4113 Jun 21 03:42	0°♂52'16	29.32414 AU
conjunction	4105 Dec 06 15:17	14°♂35'16	1°30'02		4113 Jul 25 22:27	30°♂	
minimum elong	4105 Dec 06 15:17	14°♂35'16	1°30'02	direct	4113 Sep 09 15:25	29°♂29'03	
max. Earth dist.	4105 Dec 05 19:10	14°♂33'24	31.33971 AU		4113 Oct 23 18:27	0°♂	
retrograde	4106 Mar 18 19:53	17°♂01'56					
opposition	4106 Jun 05 01:19	15°♂40'09	1°35'51	conjunction	4113 Dec 23 21:37	1°♂58'50	1°21'27
min. Earth dist.	4106 Jun 05 20:58	15°♂38'49	29.34086 AU	minimum elong	4113 Dec 23 21:37	1°♂58'50	1°21'28
direct	4106 Aug 25 03:02	14°♂15'43		max. Earth dist.	4113 Dec 23 04:42	1°♂57'15	31.32291 AU
max. Earth dist.	4106 Dec 08 05:15	16°♂44'09	31.33969 AU	retrograde	4114 Apr 05 06:37	4°♂25'44	
				opposition	4114 Jun 22 22:31	3°♂03'42	1°26'10
conjunction	4106 Dec 09 01:25	16°♂46'02	1°29'24	min. Earth dist.	4114 Jun 23 13:44	3°♂02'40	29.32318 AU
minimum elong	4106 Dec 09 01:25	16°♂46'02	1°29'24	direct	4114 Sep 12 02:51	1°♂39'23	
retrograde	4107 Mar 21 06:19	19°♂12'43					
opposition	4107 Jun 07 12:48	17°♂50'55	1°35'06	conjunction	4114 Dec 26 07:09	4°♂09'09	1°19'50
min. Earth dist.	4107 Jun 08 07:34	17°♂49'39	29.33995 AU	minimum elong	4114 Dec 26 07:09	4°♂09'09	1°19'51
direct	4107 Aug 27 14:33	16°♂26'30		max. Earth dist.	4114 Dec 25 15:06	4°♂07'38	31.32201 AU
				retrograde	4115 Apr 07 16:04	6°♂36'07	
conjunction	4107 Dec 11 11:29	18°♂56'45	1°28'38	opposition	4115 Jun 25 10:29	5°♂14'05	1°24'23
minimum elong	4107 Dec 11 11:29	18°♂56'45	1°28'38	min. Earth dist.	4115 Jun 26 02:10	5°♂13'02	29.32227 AU
max. Earth dist.	4107 Dec 10 15:04	18°♂54'50	31.33808 AU	direct	4115 Sep 14 12:54	3°♂49'50	
retrograde	4108 Mar 22 17:14	21°♂23'28					

conjunction	4115 Dec 28 16:43	6°☾19'33	1°18'06	retrograde	4124 Apr 26 16:12	26°☾11'37	
minimum elong	4115 Dec 28 16:43	6°☾19'33	1°18'06	opposition	4124 Jul 15 00:08	24°☾49'10	1°03'15
max. Earth dist.	4115 Dec 28 01:18	6°☾18'06	31.32104 AU	min. Earth dist.	4124 Jul 15 11:00	24°☾48'26	29.27421 AU
retrograde	4116 Apr 09 02:35	8°☾46'37		direct	4124 Oct 03 21:22	23°☾25'08	
opposition	4116 Jun 26 22:26	7°☾24'35	1°22'28				
min. Earth dist.	4116 Jun 27 12:47	7°☾23'36	29.32092 AU	conjunction	4125 Jan 16 05:33	25°☾54'16	0°57'53
direct	4116 Sep 15 23:58	6°☾00'23		minimum elong	4125 Jan 16 05:33	25°☾54'16	0°57'53
max. Earth dist.	4116 Dec 29 10:43	8°☾28'36	31.31931 AU	max. Earth dist.	4125 Jan 15 19:30	25°☾53'19	31.27073 AU
				retrograde	4125 Apr 29 02:34	28°☾22'08	
conjunction	4116 Dec 30 02:09	8°☾30'02	1°16'16	opposition	4125 Jul 17 12:23	26°☾59'40	1°00'25
minimum elong	4116 Dec 30 02:09	8°☾30'02	1°16'16	min. Earth dist.	4125 Jul 17 21:22	26°☾59'03	29.26819 AU
retrograde	4117 Apr 11 13:58	10°☾57'13		direct	4125 Oct 06 08:22	25°☾35'40	
opposition	4117 Jun 29 10:33	9°☾35'10	1°20'26				
min. Earth dist.	4117 Jun 30 01:13	9°☾34'10	29.31877 AU	conjunction	4126 Jan 18 14:46	28°☾04'45	0°55'11
direct	4117 Sep 18 10:20	8°☾11'01		minimum elong	4126 Jan 18 14:46	28°☾04'45	0°55'11
				max. Earth dist.	4126 Jan 18 05:02	28°☾03'50	31.26522 AU
conjunction	4118 Jan 01 11:50	10°☾40'37	1°14'18		4126 Mar 17 22:22	0°≈	
minimum elong	4118 Jan 01 11:50	10°☾40'37	1°14'18	retrograde	4126 May 01 14:04	0°≈32'46	
max. Earth dist.	4117 Dec 31 21:34	10°☾39'17	31.31658 AU		4126 Jun 17 03:31	30°☾☾	
retrograde	4118 Apr 14 00:50	13°☾07'53		opposition	4126 Jul 20 00:41	29°☾10'16	0°57'28
opposition	4118 Jul 01 22:32	11°☾45'48	1°18'18	min. Earth dist.	4126 Jul 20 09:25	29°☾09'41	29.26314 AU
min. Earth dist.	4118 Jul 02 12:37	11°☾44'51	29.31527 AU	direct	4126 Oct 08 18:18	27°☾46'20	
direct	4118 Sep 20 22:55	10°☾21'42			4127 Jan 14 04:34	0°≈	
conjunction	4119 Jan 03 21:23	12°☾51'15	1°12'15	conjunction	4127 Jan 21 00:07	0°≈15'24	0°52'24
minimum elong	4119 Jan 03 21:23	12°☾51'15	1°12'16	minimum elong	4127 Jan 21 00:07	0°≈15'24	0°52'24
max. Earth dist.	4119 Jan 03 06:26	12°☾49'51	31.31245 AU	max. Earth dist.	4127 Jan 20 16:14	0°≈14'39	31.26054 AU
retrograde	4119 Apr 16 13:03	15°☾18'36		retrograde	4127 May 04 01:22	2°≈43'34	
opposition	4119 Jul 04 10:46	13°☾56'29	1°16'03	opposition	4127 Jul 22 13:10	1°≈21'03	0°54'27
min. Earth dist.	4119 Jul 05 00:24	13°☾55'34	29.31047 AU	min. Earth dist.	4127 Jul 22 20:45	1°≈20'32	29.25855 AU
direct	4119 Sep 23 09:31	12°☾32'24			4127 Sep 28 01:21	30°☾☾	
				direct	4127 Oct 11 05:45	29°☾57'11	
conjunction	4120 Jan 06 06:56	15°☾01'54	1°10'05		4127 Oct 24 08:08	0°≈	
minimum elong	4120 Jan 06 06:56	15°☾01'54	1°10'06	conjunction	4128 Jan 23 09:14	2°≈26'14	0°49'31
max. Earth dist.	4120 Jan 05 17:24	15°☾00'38	31.30693 AU	minimum elong	4128 Jan 23 09:14	2°≈26'14	0°49'32
retrograde	4120 Apr 17 22:53	17°☾29'19		max. Earth dist.	4128 Jan 23 01:12	2°≈25'28	31.25615 AU
opposition	4120 Jul 05 23:08	16°☾07'09	1°13'41	retrograde	4128 May 05 14:06	4°≈54'34	
min. Earth dist.	4120 Jul 06 12:44	16°☾06'14	29.30417 AU	opposition	4128 Jul 24 01:44	3°≈32'02	0°51'21
direct	4120 Sep 24 22:29	14°☾43'05		min. Earth dist.	4128 Jul 24 08:25	3°≈31'34	29.25418 AU
				direct	4128 Oct 12 15:06	2°≈08'14	
conjunction	4121 Jan 07 16:23	17°☾12'30	1°07'50				
minimum elong	4121 Jan 07 16:23	17°☾12'30	1°07'51	conjunction	4129 Jan 24 18:41	4°≈37'15	0°46'35
max. Earth dist.	4121 Jan 07 02:18	17°☾11'11	31.30016 AU	minimum elong	4129 Jan 24 18:42	4°≈37'15	0°46'36
retrograde	4121 Apr 20 10:46	19°☾39'59		max. Earth dist.	4129 Jan 24 12:23	4°≈36'39	31.25160 AU
opposition	4121 Jul 08 11:11	18°☾17'45	1°11'13	retrograde	4129 May 08 01:02	7°≈05'44	
min. Earth dist.	4121 Jul 08 23:40	18°☾16'55	29.29688 AU	opposition	4129 Jul 26 14:14	5°≈43'11	0°48'10
direct	4121 Sep 27 10:49	16°☾53'41		min. Earth dist.	4129 Jul 26 20:45	5°≈42'45	29.24931 AU
				direct	4129 Oct 15 03:29	4°≈19'28	
conjunction	4122 Jan 10 01:52	19°☾23'02	1°05'29				
minimum elong	4122 Jan 10 01:52	19°☾23'02	1°05'29	conjunction	4130 Jan 27 04:04	6°≈48'27	0°43'34
max. Earth dist.	4122 Jan 09 13:10	19°☾21'50	31.29246 AU	minimum elong	4130 Jan 27 04:04	6°≈48'27	0°43'34
retrograde	4122 Apr 22 20:41	21°☾50'36		max. Earth dist.	4130 Jan 26 21:25	6°≈47'49	31.24646 AU
opposition	4122 Jul 10 23:31	20°☾28'17	1°08'40	retrograde	4130 May 10 14:35	9°≈17'04	
min. Earth dist.	4122 Jul 11 12:20	20°☾27'25	29.28894 AU	opposition	4130 Jul 29 02:52	7°≈54'30	0°44'55
direct	4122 Sep 29 23:04	19°☾04'13		min. Earth dist.	4130 Jul 29 08:07	7°≈54'09	29.24367 AU
				direct	4130 Oct 17 15:42	6°≈30'49	
conjunction	4123 Jan 12 11:04	21°☾33'28	1°03'02				
minimum elong	4123 Jan 12 11:05	21°☾33'28	1°03'02	conjunction	4131 Jan 29 13:34	8°≈59'47	0°40'30
max. Earth dist.	4123 Jan 11 22:45	21°☾32'19	31.28459 AU	minimum elong	4131 Jan 29 13:34	8°≈59'47	0°40'30
retrograde	4123 Apr 25 06:34	24°☾01'07		max. Earth dist.	4131 Jan 29 08:10	8°≈59'17	31.24015 AU
opposition	4123 Jul 13 11:44	22°☾38'44	1°06'00	retrograde	4131 May 13 01:39	11°≈28'34	
min. Earth dist.	4123 Jul 13 22:37	22°☾38'00	29.28116 AU	opposition	4131 Jul 31 15:46	10°≈05'56	0°41'35
direct	4123 Oct 02 11:05	21°☾14'40		min. Earth dist.	4131 Jul 31 21:26	10°≈05'33	29.23674 AU
				direct	4131 Oct 20 03:37	8°≈42'18	
conjunction	4124 Jan 14 20:21	23°☾43'52	1°00'30				
minimum elong	4124 Jan 14 20:22	23°☾43'52	1°00'30	conjunction	4132 Jan 31 23:06	11°≈11'13	0°37'21
max. Earth dist.	4124 Jan 14 09:03	23°☾42'48	31.27711 AU				

minimum elong	4132 Jan 31 23:06	11° 11 '13	0°37'22	conjunction	4140 Feb 18 02:55	28° 41 '42	0°10'45
max. Earth dist.	4132 Jan 31 17:53	11° 10 '43	31.23265 AU	minimum elong	4140 Feb 18 02:55	28° 41 '42	0°10'45
retrograde	4132 May 14 12:38	13° 40 '06		behind sun begin	4140 Feb 17 21:57	28° 41 '15	
opposition	4132 Aug 02 04:29	12° 17 '25	0°38'12	behind sun end	4140 Feb 18 07:52	28° 42 '09	
min. Earth dist.	4132 Aug 02 08:33	12° 17 '09	29.22847 AU	max. Earth dist.	4140 Feb 18 04:51	28° 41 '52	31.15696 AU
direct	4132 Oct 21 16:06	10° 53 '48			4140 Mar 25 08:23	0° 11 '43	
				retrograde	4140 Jun 01 08:56	1° 11 '43	
conjunction	4133 Feb 02 08:38	13° 22 '39	0°34'10		4140 Aug 13 07:57	30° 48 '26	0°09'35
minimum elong	4133 Feb 02 08:38	13° 22 '39	0°34'11	opposition	4140 Aug 20 11:14	29° 48 '33	29.15331 AU
max. Earth dist.	4133 Feb 02 03:49	13° 22 '12	31.22365 AU	min. Earth dist.	4140 Aug 20 09:20	28° 44 '59	
	4133 Mar 21 02:09	15° 51 '40		direct	4140 Nov 08 09:57	0° 53 '26	0°07'18
retrograde	4133 May 16 23:15	15° 51 '40			4141 Jan 26 11:45	0° 53 '26	0°07'18
	4133 Jul 16 01:35	15° 51 '40		conjunction	4141 Feb 19 12:31	0° 53 '26	0°07'18
opposition	4133 Aug 04 17:22	14° 28 '54	0°34'46	minimum elong	4141 Feb 19 12:31	0° 53 '26	0°07'18
min. Earth dist.	4133 Aug 04 21:54	14° 28 '35	29.21883 AU	behind sun begin	4141 Feb 19 06:38	0° 52 '54	
direct	4133 Oct 24 03:37	13° 05 '17		behind sun end	4141 Feb 19 18:24	0° 53 '58	
	4134 Jan 20 15:07	15° 53 '39		max. Earth dist.	4141 Feb 19 15:05	0° 53 '39	31.14965 AU
conjunction	4134 Feb 04 18:10	15° 34 '02	0°30'56	retrograde	4141 Jun 03 21:17	3° 00 '20	0°05'53
minimum elong	4134 Feb 04 18:10	15° 34 '02	0°30'56	opposition	4141 Aug 23 00:09	2° 00 '35	29.14585 AU
max. Earth dist.	4134 Feb 04 14:21	15° 33 '41	31.21352 AU	min. Earth dist.	4141 Aug 22 20:27	0° 36 '56	
retrograde	4134 May 19 09:46	18° 03 '09		direct	4141 Nov 10 22:14		
opposition	4134 Aug 07 06:01	16° 40 '17	0°31'17				
min. Earth dist.	4134 Aug 07 09:01	16° 40 '05	29.20816 AU	conjunction	4142 Feb 21 22:12	3° 05 '24	0°03'50
direct	4134 Oct 26 16:05	15° 16 '39		minimum elong	4142 Feb 21 22:13	3° 05 '24	0°03'50
				behind sun begin	4142 Feb 21 15:53	3° 04 '50	
conjunction	4135 Feb 07 03:35	17° 45 '19	0°27'39	behind sun end	4142 Feb 22 04:33	3° 05 '59	
minimum elong	4135 Feb 07 03:35	17° 45 '19	0°27'39	max. Earth dist.	4142 Feb 22 01:18	3° 05 '39	31.14191 AU
max. Earth dist.	4135 Feb 06 23:52	17° 44 '59	31.20267 AU	retrograde	4142 Jun 06 09:21	5° 12 '28	0°02'09
retrograde	4135 May 21 20:54	20° 14 '34		opposition	4142 Aug 25 13:16	4° 12 '41	29.13789 AU
opposition	4135 Aug 09 18:58	18° 51 '35	0°27'46	min. Earth dist.	4142 Aug 25 09:55	2° 49 '09	
min. Earth dist.	4135 Aug 09 21:45	18° 51 '23	29.19735 AU	direct	4142 Nov 13 09:33		
direct	4135 Oct 29 02:22	17° 27 '56					
				conjunction	4143 Feb 24 08:09	5° 17 '37	0°00'18
conjunction	4136 Feb 09 12:59	19° 56 '31	0°24'20	minimum elong	4143 Feb 24 08:09	5° 17 '37	0°00'18
minimum elong	4136 Feb 09 13:00	19° 56 '31	0°24'20	behind sun begin	4143 Feb 24 01:48	5° 17 '02	
max. Earth dist.	4136 Feb 09 11:16	19° 56 '22	31.19198 AU	behind sun end	4143 Feb 24 14:30	5° 18 '11	
retrograde	4136 May 23 07:16	22° 25 '53		max. Earth dist.	4143 Feb 24 12:22	5° 17 '58	31.13361 AU
opposition	4136 Aug 11 07:47	21° 02 '48	0°24'12	desc. node	4143 Mar 25 23:20	6° 22 '50	
min. Earth dist.	4136 Aug 11 09:16	21° 02 '42	29.18686 AU	retrograde	4143 Jun 08 21:11	7° 48 '12	
direct	4136 Oct 30 14:03	19° 39 '09		opposition	4143 Aug 28 02:24	6° 24 '49	0°-1'-33
				min. Earth dist.	4143 Aug 27 21:32	6° 25 '09	29.12902 AU
conjunction	4137 Feb 10 22:23	22° 07 '41	0°20'59	direct	4143 Nov 15 21:58	5° 01 '33	
minimum elong	4137 Feb 10 22:23	22° 07 '41	0°21'00				
max. Earth dist.	4137 Feb 10 20:36	22° 07 '31	31.18193 AU	conjunction	4144 Feb 26 17:59	7° 30 '00	0°-3'-16
retrograde	4137 May 25 19:59	24° 37 '10		minimum elong	4144 Feb 26 17:59	7° 30 '00	0°03'17
opposition	4137 Aug 13 20:28	23° 14 '01	0°20'35	behind sun begin	4144 Feb 26 11:37	7° 29 '26	
min. Earth dist.	4137 Aug 13 20:50	23° 13 '59	29.17733 AU	behind sun end	4144 Feb 27 00:21	7° 30 '35	
direct	4137 Nov 01 23:26	21° 50 '23		max. Earth dist.	4144 Feb 26 21:57	7° 30 '20	31.12413 AU
				retrograde	4144 Jun 10 08:57	10° 00 '47	
conjunction	4138 Feb 13 07:58	24° 18 '53	0°17'36	opposition	4144 Aug 29 15:40	8° 37 '21	0°-5'-17
minimum elong	4138 Feb 13 07:58	24° 18 '53	0°17'36	min. Earth dist.	4144 Aug 29 11:00	8° 37 '40	29.11896 AU
max. Earth dist.	4138 Feb 13 08:08	24° 18 '54	31.17280 AU	direct	4144 Nov 17 08:13	7° 14 '07	
retrograde	4138 May 28 07:12	26° 48 '32					
opposition	4138 Aug 16 09:21	25° 25 '19	0°16'57	conjunction	4145 Feb 28 04:12	9° 42 '32	0°-6'-44
min. Earth dist.	4138 Aug 16 09:04	25° 25 '20	29.16861 AU	minimum elong	4145 Feb 28 04:11	9° 42 '32	0°06'44
direct	4138 Nov 04 11:33	24° 01 '44		behind sun begin	4145 Feb 27 22:12	9° 42 '00	
				behind sun end	4145 Feb 28 10:10	9° 43 '05	
conjunction	4139 Feb 15 17:17	26° 30 '12	0°14'11	max. Earth dist.	4145 Feb 28 09:35	9° 43 '01	31.11332 AU
minimum elong	4139 Feb 15 17:17	26° 30 '12	0°14'12	retrograde	4145 Jun 12 19:36	12° 13 '29	
behind sun begin	4139 Feb 15 14:04	26° 29 '54		opposition	4145 Sep 01 04:41	10° 49 '58	0°-9'00
behind sun end	4139 Feb 15 20:31	26° 30 '29		min. Earth dist.	4145 Aug 31 23:15	10° 50 '20	29.10738 AU
max. Earth dist.	4139 Feb 15 17:40	26° 30 '14	31.16461 AU	direct	4145 Nov 19 19:52	9° 26 '44	
retrograde	4139 May 30 21:13	29° 00 '01					
opposition	4139 Aug 18 22:15	27° 36 '46	0°13'17	conjunction	4146 Mar 02 14:12	11° 55 '07	0°-10'-11
min. Earth dist.	4139 Aug 18 20:14	27° 36 '54	29.16076 AU	minimum elong	4146 Mar 02 14:11	11° 55 '07	0°10'13
direct	4139 Nov 06 22:51	26° 13 '14		behind sun begin	4146 Mar 02 09:03	11° 54 '39	

behind sun end	4146 Mar 02 19:20	11° ✕ 55'35		max. Earth dist.	4154 Mar 20 12:16	29° ✕ 36'53	31.01315 AU
max. Earth dist.	4146 Mar 02 19:01	11° ✕ 55'34	31.10118 AU		4154 Mar 30 16:36	0° Υ	
retrograde	4146 Jun 15 08:52	14° ✕ 26'12		retrograde	4154 Jul 03 11:40	2° Υ 07'57	
opposition	4146 Sep 03 17:53	13° ✕ 02'36	0°-12'-43	opposition	4154 Sep 22 02:22	0° Υ 43'43	0°-41'-16
min. Earth dist.	4146 Sep 03 11:50	13° ✕ 03'00	29.09476 AU	min. Earth dist.	4154 Sep 21 13:37	0° Υ 44'35	29.00918 AU
direct	4146 Nov 22 05:37	11° ✕ 39'21			4154 Oct 20 02:40	30° R ✕	
				direct	4154 Dec 10 03:32	29° ✕ 20'32	
conjunction	4147 Mar 05 00:12	14° ✕ 07'41	0°-13'-38		4155 Jan 27 21:15	0° Υ	
minimum elong	4147 Mar 05 00:12	14° ✕ 07'41	0°13'39				
behind sun begin	4147 Mar 04 20:36	14° ✕ 07'21		conjunction	4155 Mar 22 09:48	1° Υ 48'44	0°-40'-11
behind sun end	4147 Mar 05 03:47	14° ✕ 08'00		minimum elong	4155 Mar 22 09:48	1° Υ 48'44	0°40'11
max. Earth dist.	4147 Mar 05 06:42	14° ✕ 08'17	31.08812 AU	max. Earth dist.	4155 Mar 22 22:15	1° Υ 49'55	31.00482 AU
retrograde	4147 Jun 17 20:06	16° ✕ 38'54		retrograde	4155 Jul 06 01:34	4° Υ 21'12	
opposition	4147 Sep 06 07:05	15° ✕ 15'10	0°-16'-24	opposition	4155 Sep 24 15:36	2° Υ 56'55	0°-44'-38
min. Earth dist.	4147 Sep 06 00:39	15° ✕ 15'37	29.08149 AU	min. Earth dist.	4155 Sep 24 02:21	2° Υ 57'50	29.00076 AU
direct	4147 Nov 24 18:08	13° ✕ 51'54		direct	4155 Dec 12 13:27	1° Υ 33'47	
conjunction	4148 Mar 06 10:12	16° ✕ 20'10	0°-17'-4	conjunction	4156 Mar 23 20:38	4° Υ 02'00	0°-43'-17
minimum elong	4148 Mar 06 10:11	16° ✕ 20'10	0°17'05	minimum elong	4156 Mar 23 20:38	4° Υ 02'00	0°43'19
max. Earth dist.	4148 Mar 06 16:45	16° ✕ 20'47	31.07494 AU	max. Earth dist.	4156 Mar 24 10:28	4° Υ 03'19	30.99597 AU
retrograde	4148 Jun 19 10:08	18° ✕ 51'31		retrograde	4156 Jul 07 12:55	6° Υ 34'38	
opposition	4148 Sep 07 20:01	17° ✕ 27'41	0°-20'-3	opposition	4156 Sep 26 04:42	5° Υ 10'19	0°-47'-56
min. Earth dist.	4148 Sep 07 12:05	17° ✕ 28'13	29.06854 AU	min. Earth dist.	4156 Sep 25 15:24	5° Υ 11'13	28.99152 AU
direct	4148 Nov 26 05:07	16° ✕ 04'22		direct	4156 Dec 14 01:12	3° Υ 47'11	
conjunction	4149 Mar 08 20:16	18° ✕ 32'37	0°-20'-28	conjunction	4157 Mar 26 07:29	6° Υ 15'25	0°-46'-20
minimum elong	4149 Mar 08 20:16	18° ✕ 32'37	0°20'29	minimum elong	4157 Mar 26 07:29	6° Υ 15'25	0°46'21
max. Earth dist.	4149 Mar 09 04:15	18° ✕ 33'22	31.06217 AU	max. Earth dist.	4157 Mar 26 20:52	6° Υ 16'41	30.98628 AU
retrograde	4149 Jun 21 21:38	21° ✕ 04'06		retrograde	4157 Jul 10 03:15	8° Υ 48'12	
opposition	4149 Sep 10 09:08	19° ✕ 40'09	0°-23'-41	opposition	4157 Sep 28 17:52	7° Υ 23'49	0°-51'-9
min. Earth dist.	4149 Sep 10 01:11	19° ✕ 40'41	29.05625 AU	min. Earth dist.	4157 Sep 28 03:34	7° Υ 24'48	28.98131 AU
direct	4149 Nov 28 15:56	18° ✕ 16'50		direct	4157 Dec 16 11:48	6° Υ 00'41	
conjunction	4150 Mar 11 06:19	20° ✕ 45'02	0°-23'-51	conjunction	4158 Mar 28 18:21	8° Υ 28'56	0°-49'-19
minimum elong	4150 Mar 11 06:18	20° ✕ 45'02	0°23'53	minimum elong	4158 Mar 28 18:21	8° Υ 28'56	0°49'21
max. Earth dist.	4150 Mar 11 15:10	20° ✕ 45'52	31.05043 AU	max. Earth dist.	4158 Mar 29 08:33	8° Υ 30'17	30.97538 AU
retrograde	4150 Jun 24 10:56	23° ✕ 16'40		retrograde	4158 Jul 12 15:18	11° Υ 01'52	
opposition	4150 Sep 12 22:04	21° ✕ 52'38	0°-27'-17	opposition	4158 Oct 01 07:09	9° Υ 37'23	0°-54'-19
min. Earth dist.	4150 Sep 12 12:06	21° ✕ 53'19	29.04506 AU	min. Earth dist.	4158 Sep 30 17:23	9° Υ 38'20	28.96996 AU
direct	4150 Dec 01 04:55	20° ✕ 29'19		direct	4158 Dec 18 22:42	8° Υ 14'15	
conjunction	4151 Mar 13 16:25	22° ✕ 57'31	0°-27'-12	conjunction	4159 Mar 31 05:19	10° Υ 42'29	0°-52'-14
minimum elong	4151 Mar 13 16:25	22° ✕ 57'31	0°27'13	minimum elong	4159 Mar 31 05:19	10° Υ 42'29	0°52'15
max. Earth dist.	4151 Mar 14 01:57	22° ✕ 58'25	31.03975 AU	max. Earth dist.	4159 Mar 31 19:56	10° Υ 43'52	30.96377 AU
retrograde	4151 Jun 27 00:13	25° ✕ 29'18		retrograde	4159 Jul 15 05:36	13° Υ 15'31	
opposition	4151 Sep 15 11:13	24° ✕ 05'11	0°-30'-51	opposition	4159 Oct 03 20:12	11° Υ 50'58	0°-57'-23
min. Earth dist.	4151 Sep 15 01:16	24° ✕ 05'52	29.03504 AU	min. Earth dist.	4159 Oct 03 05:00	11° Υ 52'00	28.95811 AU
direct	4151 Dec 03 16:32	22° ✕ 41'54		direct	4159 Dec 21 11:47	10° Υ 27'47	
conjunction	4152 Mar 15 02:38	25° ✕ 10'05	0°-30'-31	conjunction	4160 Apr 01 16:13	12° Υ 56'01	0°-55'-4
minimum elong	4152 Mar 15 02:38	25° ✕ 10'05	0°30'32	minimum elong	4160 Apr 01 16:13	12° Υ 56'00	0°55'06
max. Earth dist.	4152 Mar 15 13:42	25° ✕ 11'07	31.03027 AU	max. Earth dist.	4160 Apr 02 07:04	12° Υ 57'25	30.95176 AU
retrograde	4152 Jun 28 12:15	27° ✕ 42'01		retrograde	4160 Jul 16 19:21	15° Υ 29'10	
opposition	4152 Sep 17 00:13	26° ✕ 17'51	0°-34'-22	opposition	4160 Oct 05 09:20	14° Υ 04'30	-1°00'-22
min. Earth dist.	4152 Sep 16 12:28	26° ✕ 18'40	29.02592 AU	min. Earth dist.	4160 Oct 04 18:35	14° Υ 05'31	28.94629 AU
direct	4152 Dec 05 05:13	24° ✕ 54'36		direct	4160 Dec 22 23:38	12° Υ 41'19	
conjunction	4153 Mar 17 12:54	27° ✕ 22'47	0°-33'-47	conjunction	4161 Apr 04 03:17	15° Υ 09'31	0°-57'-49
minimum elong	4153 Mar 17 12:54	27° ✕ 22'47	0°33'47	minimum elong	4161 Apr 04 03:16	15° Υ 09'31	0°57'50
max. Earth dist.	4153 Mar 17 23:56	27° ✕ 23'50	31.02147 AU	max. Earth dist.	4161 Apr 04 19:25	15° Υ 11'03	30.94018 AU
retrograde	4153 Jul 01 00:22	29° ✕ 54'54		retrograde	4161 Jul 19 07:45	17° Υ 42'48	
opposition	4153 Sep 19 13:14	28° ✕ 30'41	0°-37'-51	opposition	4161 Oct 07 22:08	16° Υ 18'03	-1°-3'-16
min. Earth dist.	4153 Sep 19 01:29	28° ✕ 31'30	29.01748 AU	min. Earth dist.	4161 Oct 07 05:45	16° Υ 19'11	28.93511 AU
direct	4153 Dec 07 15:27	27° ✕ 07'28		direct	4161 Dec 25 12:36	14° Υ 54'50	
conjunction	4154 Mar 19 23:25	29° ✕ 35'40	0°-37'00	conjunction	4162 Apr 06 14:14	17° Υ 23'03	-1°00'-29
minimum elong	4154 Mar 19 23:25	29° ✕ 35'40	0°37'02	minimum elong	4162 Apr 06 14:14	17° Υ 23'03	1°00'30

max. Earth dist.	4162 Apr 07 06:16	17° Υ 24'34	30.92948 AU	max. Earth dist.	4170 Apr 25 07:02	5° 8 18'29	30.87593 AU
retrograde	4162 Jul 21 20:38	19° Υ 56'27		retrograde	4170 Aug 09 05:55	7° 8 50'56	
opposition	4162 Oct 10 11:12	18° Υ 31'38	-1°-6'-4	opposition	4170 Oct 28 18:26	6° 8 25'55	-1°-24'-40
min. Earth dist.	4162 Oct 09 18:48	18° Υ 32'46	28.92516 AU	min. Earth dist.	4170 Oct 27 22:31	6° 8 27'17	28.87284 AU
direct	4162 Dec 27 23:26	17° Υ 08'26		direct	4171 Jan 14 18:34	5° 8 02'47	
conjunction	4163 Apr 09 01:19	19° Υ 36'39	-1°-3'-4	conjunction	4171 Apr 26 22:32	7° 8 31'19	-1°-20'-1
minimum elong	4163 Apr 09 01:19	19° Υ 36'39	1°03'04	minimum elong	4171 Apr 26 22:32	7° 8 31'19	1°20'02
max. Earth dist.	4163 Apr 09 19:16	19° Υ 38'21	30.92012 AU	max. Earth dist.	4171 Apr 27 18:10	7° 8 33'11	30.86804 AU
retrograde	4163 Jul 24 08:41	22° Υ 10'11		retrograde	4171 Aug 11 20:14	10° 8 05'46	
min. Earth dist.	4163 Oct 12 06:34	20° Υ 46'32	28.91646 AU	opposition	4171 Oct 31 07:26	8° 8 40'40	-1°-26'-27
opposition	4163 Oct 13 00:06	20° Υ 45'19	-1°-8'-47	min. Earth dist.	4171 Oct 30 12:16	8° 8 42'00	28.86464 AU
direct	4163 Dec 30 12:07	19° Υ 22'07		direct	4172 Jan 17 06:25	7° 8 17'30	
conjunction	4164 Apr 10 12:29	21° Υ 50'22	-1°-5'-33	conjunction	4172 Apr 28 10:49	9° 8 46'02	-1°-21'-38
minimum elong	4164 Apr 10 12:28	21° Υ 50'22	1°05'34	minimum elong	4172 Apr 28 10:48	9° 8 46'02	1°21'39
max. Earth dist.	4164 Apr 11 06:04	21° Υ 52'02	30.91211 AU	max. Earth dist.	4172 Apr 29 07:39	9° 8 48'01	30.85954 AU
retrograde	4164 Jul 25 22:21	24° Υ 24'02		retrograde	4172 Aug 13 09:18	12° 8 20'30	
opposition	4164 Oct 14 12:54	22° Υ 59'08	-1°-11'-23	opposition	4172 Nov 01 20:02	10° 8 55'21	-1°-28'-6
min. Earth dist.	4164 Oct 13 18:50	23° Υ 00'23	28.90917 AU	min. Earth dist.	4172 Nov 01 00:21	10° 8 56'42	28.85600 AU
direct	4164 Dec 31 22:15	21° Υ 35'57		direct	4173 Jan 18 20:13	9° 8 32'07	
conjunction	4165 Apr 12 23:52	24° Υ 04'15	-1°-7'-56	conjunction	4173 Apr 30 22:54	12° 8 00'39	-1°-23'-7
minimum elong	4165 Apr 12 23:52	24° Υ 04'15	1°07'57	minimum elong	4173 Apr 30 22:54	12° 8 00'39	1°23'08
max. Earth dist.	4165 Apr 13 19:01	24° Υ 06'04	30.90527 AU	max. Earth dist.	4173 May 01 18:55	12° 8 02'33	30.85100 AU
retrograde	4165 Jul 28 09:09	26° Υ 38'03		retrograde	4173 Aug 15 22:37	14° 8 35'10	
min. Earth dist.	4165 Oct 16 07:24	25° Υ 14'25	28.90284 AU	opposition	4173 Nov 04 08:46	13° 8 09'56	-1°-29'-38
opposition	4165 Oct 17 01:48	25° Υ 13'08	-1°-13'-53	min. Earth dist.	4173 Nov 03 13:02	13° 8 11'18	28.84777 AU
direct	4166 Jan 03 09:44	23° Υ 50'00		direct	4174 Jan 21 07:15	11° 8 46'40	
conjunction	4166 Apr 15 11:07	26° Υ 18'19	-1°-10'-13	conjunction	4174 May 03 11:02	14° 8 15'12	-1°-24'-29
minimum elong	4166 Apr 15 11:06	26° Υ 18'19	1°10'15	minimum elong	4174 May 03 11:02	14° 8 15'12	1°24'30
max. Earth dist.	4166 Apr 16 06:08	26° Υ 20'07	30.89944 AU	max. Earth dist.	4174 May 04 08:24	14° 8 17'13	30.84301 AU
retrograde	4166 Jul 30 23:20	28° Υ 52'16			4174 May 23 10:21	15° 8	
opposition	4166 Oct 19 14:43	27° Υ 27'21	-1°-16'-17	retrograde	4174 Aug 18 09:49	16° 8 49'45	
min. Earth dist.	4166 Oct 18 19:14	27° Υ 28'42	28.89737 AU	opposition	4174 Nov 06 21:27	15° 8 24'27	-1°-31'-1
direct	4167 Jan 05 19:35	26° Υ 04'14		min. Earth dist.	4174 Nov 06 01:32	15° 8 25'51	28.84027 AU
conjunction	4167 Apr 17 22:45	28° Υ 32'37	-1°-12'-24		4174 Nov 21 18:01	15° 8	
minimum elong	4167 Apr 17 22:45	28° Υ 32'37	1°12'25	direct	4175 Jan 23 19:42	14° 8 01'09	
max. Earth dist.	4167 Apr 18 18:41	28° Υ 34'30	30.89406 AU		4175 Mar 24 16:53	15° 8	
retrograde	4167 May 28 17:30	0° 8		conjunction	4175 May 05 23:17	16° 8 29'42	-1°-25'-43
	4167 Aug 02 11:41	1° 8 06'42		minimum elong	4175 May 05 23:17	16° 8 29'42	1°25'43
	4167 Oct 11 01:27	30° R Υ		max. Earth dist.	4175 May 06 20:14	16° 8 31'41	30.83614 AU
min. Earth dist.	4167 Oct 21 08:49	29° Υ 43'04	28.89213 AU	retrograde	4175 Aug 21 00:00	19° 8 04'19	
opposition	4167 Oct 22 03:41	29° Υ 41'46	-1°-18'-33	opposition	4175 Nov 09 09:56	17° 8 38'58	-1°-32'-16
direct	4168 Jan 08 05:43	28° Υ 18'41		min. Earth dist.	4175 Nov 08 13:10	17° 8 40'25	28.83408 AU
	4168 Mar 29 09:50	0° 8		direct	4176 Jan 26 06:15	16° 8 15'38	
conjunction	4168 Apr 19 10:32	0° 8 47'06	-1°-14'-29	conjunction	4176 May 07 11:41	18° 8 44'14	-1°-26'-49
minimum elong	4168 Apr 19 10:32	0° 8 47'06	1°14'31	minimum elong	4176 May 07 11:41	18° 8 44'14	1°26'51
max. Earth dist.	4168 Apr 20 06:40	0° 8 49'01	30.88879 AU	max. Earth dist.	4176 May 08 09:27	18° 8 46'18	30.83046 AU
retrograde	4168 Aug 04 02:26	3° 8 21'19		retrograde	4176 Aug 22 11:35	21° 8 18'54	
opposition	4168 Oct 23 16:33	1° 8 56'22	-1°-20'-43	opposition	4176 Nov 10 22:31	19° 8 53'33	-1°-33'-22
min. Earth dist.	4168 Oct 22 20:38	1° 8 57'45	28.88662 AU	min. Earth dist.	4176 Nov 10 02:16	19° 8 54'58	28.82908 AU
direct	4169 Jan 09 18:24	0° 8 33'17		direct	4177 Jan 27 16:54	18° 8 30'12	
conjunction	4169 Apr 21 22:26	3° 8 01'47	-1°-16'-27	conjunction	4177 May 10 00:04	20° 8 58'51	-1°-27'-47
minimum elong	4169 Apr 21 22:26	3° 8 01'47	1°16'27	minimum elong	4177 May 10 00:04	20° 8 58'51	1°27'48
max. Earth dist.	4169 Apr 22 18:17	3° 8 03'39	30.88277 AU	max. Earth dist.	4177 May 10 22:06	21° 8 00'56	30.82617 AU
retrograde	4169 Aug 06 16:12	5° 8 36'05		retrograde	4177 Aug 25 01:27	23° 8 33'35	
min. Earth dist.	4169 Oct 25 10:37	4° 8 12'25	28.88025 AU	opposition	4177 Nov 13 10:55	22° 8 08'14	-1°-34'-20
opposition	4169 Oct 26 05:32	4° 8 11'07	-1°-22'-45	min. Earth dist.	4177 Nov 12 13:28	22° 8 09'44	28.82540 AU
direct	4170 Jan 12 05:29	2° 8 48'01		direct	4178 Jan 30 04:52	20° 8 44'53	
conjunction	4170 Apr 24 10:34	5° 8 16'33	-1°-18'-17	conjunction	4178 May 12 12:32	23° 8 13'37	-1°-28'-37
minimum elong	4170 Apr 24 10:34	5° 8 16'33	1°18'19	minimum elong	4178 May 12 12:32	23° 8 13'37	1°28'39

max. Earth dist.	4178 May 13 10:34	23° 8 15'42	30.82301 AU	conjunction	4186 May 30 20:58	11° II 16'30	-1°-30'-21
retrograde	4178 Aug 27 14:37	25° 8 48'25		minimum elong	4186 May 30 20:58	11° II 16'30	1°30'23
opposition	4178 Nov 15 23:29	24° 8 23'05	-1°-35'-10	max. Earth dist.	4186 May 31 17:37	11° II 18'27	30.79679 AU
min. Earth dist.	4178 Nov 15 02:54	24° 8 24'31	28.82283 AU	retrograde	4186 Sep 15 03:01	13° II 51'24	
direct	4179 Feb 01 15:02	22° 8 59'45		min. Earth dist.	4186 Dec 03 06:18	12° II 27'24	28.79573 AU
				opposition	4186 Dec 04 01:50	12° II 26'01	-1°-36'-25
conjunction	4179 May 15 01:13	25° 8 28'34	-1°-29'-19	direct	4187 Feb 19 16:08	11° II 02'26	
minimum elong	4179 May 15 01:13	25° 8 28'34	1°29'20				
max. Earth dist.	4179 May 15 23:59	25° 8 30'43	30.82089 AU	conjunction	4187 Jun 02 10:11	13° II 31'40	-1°-29'-57
retrograde	4179 Aug 30 04:55	28° 8 03'26		minimum elong	4187 Jun 02 10:11	13° II 31'40	1°29'57
opposition	4179 Nov 18 11:53	26° 8 38'08	-1°-35'-50	max. Earth dist.	4187 Jun 03 06:36	13° II 33'36	30.79306 AU
min. Earth dist.	4179 Nov 17 14:19	26° 8 39'39	28.82089 AU	retrograde	4187 Sep 17 15:06	16° II 06'32	
direct	4180 Feb 04 03:30	25° 8 14'49		opposition	4187 Dec 06 13:52	14° II 41'07	-1°-35'-55
				min. Earth dist.	4187 Dec 05 19:26	14° II 42'25	28.79262 AU
conjunction	4180 May 16 14:00	27° 8 43'44	-1°-29'-53	direct	4188 Feb 22 01:58	13° II 17'28	
minimum elong	4180 May 16 14:00	27° 8 43'44	1°29'54				
max. Earth dist.	4180 May 17 11:49	27° 8 45'48	30.81905 AU	conjunction	4188 Jun 03 23:34	15° II 46'44	-1°-29'-24
	4180 Jul 28 21:13	0° II		minimum elong	4188 Jun 03 23:34	15° II 46'44	1°29'26
retrograde	4180 Aug 31 19:53	0° II 18'41		max. Earth dist.	4188 Jun 04 20:24	15° II 48'42	30.79062 AU
	4180 Oct 05 07:01	30° R 8		retrograde	4188 Sep 19 04:03	18° II 21'33	
min. Earth dist.	4180 Nov 19 03:44	28° 8 54'50	28.81911 AU	min. Earth dist.	4188 Dec 07 06:11	16° II 57'30	28.79082 AU
opposition	4180 Nov 20 00:16	28° 8 53'24	-1°-36'-21	opposition	4188 Dec 08 01:34	16° II 56'08	-1°-35'-16
direct	4181 Feb 05 14:53	27° 8 30'06		direct	4189 Feb 23 14:41	15° II 32'25	
conjunction	4181 May 19 03:05	29° 8 59'07	-1°-30'-18	conjunction	4189 Jun 06 12:49	18° II 01'45	-1°-28'-44
minimum elong	4181 May 19 03:05	29° 8 59'07	1°30'19	minimum elong	4189 Jun 06 12:49	18° II 01'45	1°28'44
	4181 May 19 12:29	0° II		max. Earth dist.	4189 Jun 07 08:47	18° II 03'37	30.78958 AU
max. Earth dist.	4181 May 20 01:45	0° II 01'15	30.81706 AU	retrograde	4189 Sep 21 17:28	20° II 36'31	
retrograde	4181 Sep 03 10:02	2° II 34'06		opposition	4189 Dec 10 13:30	19° II 11'06	-1°-34'-28
opposition	4181 Nov 22 12:40	1° II 08'51	-1°-36'-44	min. Earth dist.	4189 Dec 09 18:55	19° II 12'24	28.79063 AU
min. Earth dist.	4181 Nov 21 15:56	1° II 10'18	28.81675 AU	direct	4190 Feb 26 01:49	17° II 47'20	
	4182 Jan 09 17:48	30° R 8					
direct	4182 Feb 08 04:39	29° 8 45'33		conjunction	4190 Jun 09 02:09	20° II 16'44	-1°-27'-55
	4182 Mar 09 01:13	0° II		minimum elong	4190 Jun 09 02:10	20° II 16'44	1°27'57
				max. Earth dist.	4190 Jun 09 23:12	20° II 18'43	30.79017 AU
conjunction	4182 May 21 16:01	2° II 14'38	-1°-30'-35	retrograde	4190 Sep 24 06:40	22° II 51'27	
minimum elong	4182 May 21 16:01	2° II 14'38	1°30'37	min. Earth dist.	4190 Dec 12 06:16	21° II 27'25	28.79184 AU
max. Earth dist.	4182 May 22 13:16	2° II 16'38	30.81433 AU	opposition	4190 Dec 13 01:17	21° II 26'04	-1°-33'-31
retrograde	4182 Sep 06 00:06	4° II 49'39		direct	4191 Feb 28 15:00	20° II 02'18	
min. Earth dist.	4182 Nov 24 05:03	3° II 25'49	28.81360 AU				
opposition	4182 Nov 25 01:11	3° II 24'24	-1°-36'-58	conjunction	4191 Jun 11 15:36	22° II 31'46	-1°-26'-58
direct	4183 Feb 10 15:46	2° II 01'04		minimum elong	4191 Jun 11 15:36	22° II 31'46	1°26'59
				max. Earth dist.	4191 Jun 12 11:25	22° II 33'37	30.79213 AU
conjunction	4183 May 24 05:20	4° II 30'12	-1°-30'-44	retrograde	4191 Sep 26 21:03	25° II 06'27	
minimum elong	4183 May 24 05:20	4° II 30'12	1°30'45	opposition	4191 Dec 15 12:59	23° II 41'07	-1°-32'-26
max. Earth dist.	4183 May 25 03:10	4° II 32'16	30.81061 AU	min. Earth dist.	4191 Dec 14 18:31	23° II 42'25	28.79439 AU
retrograde	4183 Sep 08 12:44	7° II 05'13		direct	4192 Mar 02 01:43	22° II 17'19	
opposition	4183 Nov 27 13:27	5° II 39'58	-1°-37'-3				
min. Earth dist.	4183 Nov 26 17:52	5° II 41'20	28.80939 AU	conjunction	4192 Jun 13 05:19	24° II 46'53	-1°-25'-53
direct	4184 Feb 13 04:59	4° II 16'35		minimum elong	4192 Jun 13 05:20	24° II 46'53	1°25'55
				max. Earth dist.	4192 Jun 14 01:54	24° II 48'49	30.79506 AU
conjunction	4184 May 25 18:34	6° II 45'45	-1°-30'-44	retrograde	4192 Sep 28 10:32	27° II 21'33	
minimum elong	4184 May 25 18:34	6° II 45'45	1°30'46	min. Earth dist.	4192 Dec 16 06:46	25° II 57'32	28.79754 AU
max. Earth dist.	4184 May 26 15:07	6° II 47'42	30.80615 AU	opposition	4192 Dec 17 00:43	25° II 56'16	-1°-31'-12
retrograde	4184 Sep 10 03:33	9° II 20'45		direct	4193 Mar 04 14:59	24° II 32'29	
min. Earth dist.	4184 Nov 28 05:57	7° II 56'49	28.80467 AU				
opposition	4184 Nov 29 01:41	7° II 55'26	-1°-36'-59	conjunction	4193 Jun 15 18:52	27° II 02'08	-1°-24'-40
direct	4185 Feb 14 16:35	6° II 32'00		minimum elong	4193 Jun 15 18:52	27° II 02'08	1°24'41
				max. Earth dist.	4193 Jun 16 14:03	27° II 03'56	30.79844 AU
conjunction	4185 May 28 07:44	9° II 01'11	-1°-30'-37	retrograde	4193 Oct 01 01:23	29° II 36'46	
minimum elong	4185 May 28 07:44	9° II 01'11	1°30'37	opposition	4193 Dec 19 12:26	28° II 11'32	-1°-29'-50
max. Earth dist.	4185 May 29 04:39	9° II 03'10	30.80125 AU	min. Earth dist.	4193 Dec 18 18:31	28° II 12'48	28.80088 AU
retrograde	4185 Sep 12 14:10	11° II 36'09		direct	4194 Mar 07 02:45	26° II 47'45	
opposition	4185 Dec 01 13:52	10° II 10'48	-1°-36'-46				
min. Earth dist.	4185 Nov 30 19:05	10° II 12'07	28.79985 AU	conjunction	4194 Jun 18 08:47	29° II 17'30	-1°-23'-19
direct	4186 Feb 17 04:13	8° II 47'17		minimum elong	4194 Jun 18 08:47	29° II 17'30	1°23'21
				max. Earth dist.	4194 Jun 19 03:58	29° II 19'18	30.80151 AU

	4194 Jul 07 10:07	0°♄		retrograde	4202 Oct 22 20:33	19°♄52'34	
retrograde	4194 Oct 03 13:10	1°♄52'05		opposition	4203 Jan 09 18:51	18°♄27'36	-1°-11'-42
min. Earth dist.	4194 Dec 21 07:41	0°♄28'04	28.80365 AU	min. Earth dist.	4203 Jan 09 05:38	18°♄28'32	28.82446 AU
opposition	4194 Dec 22 00:11	0°♄26'55	-1°-28'-19	direct	4203 Mar 28 13:54	17°♄03'23	
	4195 Jan 07 04:20	30°♄II					
direct	4195 Mar 09 14:25	29°♄II03'07		conjunction	4203 Jul 10 14:02	19°♄33'39	-1°-5'-52
	4195 May 07 16:09	0°♄		minimum elong	4203 Jul 10 14:02	19°♄33'39	1°05'53
				max. Earth dist.	4203 Jul 11 04:18	19°♄34'59	30.82745 AU
conjunction	4195 Jun 20 22:44	1°♄32'55	-1°-21'-51	retrograde	4203 Oct 25 08:36	22°♄07'20	
minimum elong	4195 Jun 20 22:44	1°♄32'55	1°21'52	opposition	4204 Jan 12 06:01	20°♄42'27	-1°-9'-6
max. Earth dist.	4195 Jun 21 16:48	1°♄34'37	30.80401 AU	min. Earth dist.	4204 Jan 11 17:56	20°♄43'18	28.83177 AU
retrograde	4195 Oct 06 02:59	4°♄07'26		direct	4204 Mar 30 01:43	19°♄18'14	
opposition	4195 Dec 24 11:48	2°♄42'18	-1°-26'-41				
min. Earth dist.	4195 Dec 23 19:08	2°♄43'28	28.80564 AU	conjunction	4204 Jul 12 03:59	21°♄48'34	-1°-3'-22
direct	4196 Mar 11 02:26	1°♄18'27		minimum elong	4204 Jul 12 04:00	21°♄48'34	1°03'24
				max. Earth dist.	4204 Jul 12 17:17	21°♄49'49	30.83547 AU
conjunction	4196 Jun 22 12:42	3°♄48'19	-1°-20'-15	retrograde	4204 Oct 26 23:00	24°♄22'09	
minimum elong	4196 Jun 22 12:42	3°♄48'19	1°20'17	opposition	4205 Jan 13 16:57	22°♄57'21	-1°-6'-23
max. Earth dist.	4196 Jun 23 05:55	3°♄49'56	30.80554 AU	min. Earth dist.	4205 Jan 13 04:34	22°♄58'14	28.84015 AU
retrograde	4196 Oct 07 14:59	6°♄22'45		direct	4205 Apr 01 13:49	21°♄33'09	
opposition	4196 Dec 25 23:24	4°♄57'38	-1°-24'-54				
min. Earth dist.	4196 Dec 25 08:26	4°♄58'42	28.80686 AU	conjunction	4205 Jul 14 18:04	24°♄03'35	-1°00'-47
direct	4197 Mar 13 12:25	3°♄33'44		minimum elong	4205 Jul 14 18:04	24°♄03'35	1°00'48
				max. Earth dist.	4205 Jul 15 06:50	24°♄04'46	30.84411 AU
conjunction	4197 Jun 25 02:40	6°♄03'39	-1°-18'-32	retrograde	4205 Oct 29 11:06	26°♄37'04	
minimum elong	4197 Jun 25 02:40	6°♄03'39	1°18'33	opposition	4206 Jan 16 04:04	25°♄12'22	-1°-3'-34
max. Earth dist.	4197 Jun 25 19:36	6°♄05'15	30.80669 AU	min. Earth dist.	4206 Jan 15 17:26	25°♄13'07	28.84895 AU
retrograde	4197 Oct 10 03:18	8°♄37'59		direct	4206 Apr 03 23:50	23°♄48'10	
opposition	4197 Dec 28 10:47	7°♄12'53	-1°-23'00				
min. Earth dist.	4197 Dec 27 19:24	7°♄13'59	28.80784 AU	conjunction	4206 Jul 17 08:13	26°♄18'40	0°-58'-6
direct	4198 Mar 16 01:17	5°♄48'55		minimum elong	4206 Jul 17 08:13	26°♄18'40	0°58'08
				max. Earth dist.	4206 Jul 17 20:22	26°♄19'48	30.85292 AU
conjunction	4198 Jun 27 16:24	8°♄18'53	-1°-16'-42	retrograde	4206 Oct 31 23:08	28°♄52'03	
minimum elong	4198 Jun 27 16:24	8°♄18'53	1°16'44	opposition	4207 Jan 18 15:04	27°♄27'26	-1°00'-39
max. Earth dist.	4198 Jun 28 08:02	8°♄20'21	30.80775 AU	min. Earth dist.	4207 Jan 18 04:21	27°♄28'11	28.85739 AU
retrograde	4198 Oct 12 15:33	10°♄53'07		direct	4207 Apr 06 12:40	26°♄03'13	
opposition	4198 Dec 30 22:15	9°♄28'01	-1°-20'-59				
min. Earth dist.	4198 Dec 30 08:12	9°♄29'01	28.80910 AU	conjunction	4207 Jul 19 22:30	28°♄33'46	0°-55'-20
direct	4199 Mar 18 12:16	8°♄03'59		minimum elong	4207 Jul 19 22:30	28°♄33'47	0°55'21
				max. Earth dist.	4207 Jul 20 08:52	28°♄34'45	30.86095 AU
conjunction	4199 Jun 30 06:28	10°♄33'59	-1°-14'-45		4207 Aug 29 16:09	0°♄	
minimum elong	4199 Jun 30 06:28	10°♄33'59	1°14'46	retrograde	4207 Nov 03 10:57	1°♄07'02	
max. Earth dist.	4199 Jun 30 22:34	10°♄35'30	30.80933 AU		4208 Jan 10 16:36	30°♄	
retrograde	4199 Oct 15 03:53	13°♄08'06		opposition	4208 Jan 21 02:07	29°♄42'29	0°-57'-38
opposition	4200 Jan 02 09:22	11°♄43'02	-1°-18'-50	min. Earth dist.	4208 Jan 20 17:09	29°♄43'07	28.86501 AU
min. Earth dist.	4200 Jan 01 19:15	11°♄44'02	28.81098 AU	direct	4208 Apr 07 22:52	28°♄18'13	
direct	4200 Mar 21 01:10	10°♄18'55			4208 Jun 29 09:00	0°♄	
conjunction	4200 Jul 02 20:18	12°♄48'59	-1°-12'-42	conjunction	4208 Jul 21 12:53	0°♄48'51	0°-52'-29
minimum elong	4200 Jul 02 20:18	12°♄48'59	1°12'43	minimum elong	4208 Jul 21 12:53	0°♄48'51	0°52'31
max. Earth dist.	4200 Jul 03 10:54	12°♄50'21	30.81177 AU	max. Earth dist.	4208 Jul 21 23:02	0°♄49'47	30.86811 AU
retrograde	4200 Oct 17 17:33	15°♄23'00		retrograde	4208 Nov 04 22:53	3°♄21'57	
opposition	4201 Jan 04 20:38	13°♄57'56	-1°-16'-34	opposition	4209 Jan 22 13:07	1°♄57'27	0°-54'-33
min. Earth dist.	4201 Jan 04 07:10	13°♄58'53	28.81407 AU	min. Earth dist.	4209 Jan 22 04:31	1°♄58'03	28.87156 AU
direct	4201 Mar 23 11:58	12°♄33'47		direct	4209 Apr 10 11:16	0°♄33'08	
conjunction	4201 Jul 05 10:08	15°♄03'54	-1°-10'-31	conjunction	4209 Jul 24 02:53	3°♄03'46	0°-49'-34
minimum elong	4201 Jul 05 10:08	15°♄03'54	1°10'32	minimum elong	4209 Jul 24 02:53	3°♄03'46	0°49'35
max. Earth dist.	4201 Jul 06 01:31	15°♄05'21	30.81548 AU	max. Earth dist.	4209 Jul 24 11:01	3°♄04'32	30.87433 AU
retrograde	4201 Oct 20 06:36	17°♄37'48		retrograde	4209 Nov 07 11:18	5°♄36'44	
opposition	4202 Jan 07 07:50	16°♄12'47	-1°-14'-12	opposition	4210 Jan 25 00:07	4°♄12'15	0°-51'-23
min. Earth dist.	4202 Jan 06 18:44	16°♄13'42	28.81843 AU	min. Earth dist.	4210 Jan 24 16:39	4°♄12'46	28.87748 AU
direct	4202 Mar 26 01:52	14°♄48'36		direct	4210 Apr 12 22:32	2°♄47'52	
conjunction	4202 Jul 07 23:59	17°♄18'47	-1°-8'-15	conjunction	4210 Jul 26 17:10	5°♄18'32	0°-46'-34
minimum elong	4202 Jul 07 23:59	17°♄18'47	1°08'17	minimum elong	4210 Jul 26 17:11	5°♄18'32	0°46'36
max. Earth dist.	4202 Jul 08 13:57	17°♄20'05	30.82074 AU	max. Earth dist.	4210 Jul 27 01:30	5°♄19'18	30.87999 AU

retrograde	4210 Nov 09 22:52	7°Ω51'18		retrograde	4218 Nov 27 23:06	25°Ω43'29	
opposition	4211 Jan 27 10:52	6°Ω26'51	0°-48'-9	opposition	4219 Feb 13 23:29	24°Ω19'35	0°-20'-7
min. Earth dist.	4211 Jan 27 04:22	6°Ω27'19	28.88291 AU	min. Earth dist.	4219 Feb 13 22:06	24°Ω19'41	28.95215 AU
direct	4211 Apr 15 12:12	5°Ω02'24		direct	4219 May 03 08:47	22°Ω54'57	
conjunction	4211 Jul 29 07:16	7°Ω33'06	0°-43'-30	conjunction	4219 Aug 16 22:56	25°Ω26'05	0°-17'-7
minimum elong	4211 Jul 29 07:16	7°Ω33'06	0°43'31	minimum elong	4219 Aug 16 22:56	25°Ω26'05	0°17'09
max. Earth dist.	4211 Jul 29 13:36	7°Ω33'41	30.88551 AU	max. Earth dist.	4219 Aug 17 00:19	25°Ω26'13	30.95740 AU
retrograde	4211 Nov 12 12:06	10°Ω05'42		retrograde	4219 Nov 30 10:05	27°Ω57'34	
opposition	4212 Jan 29 21:35	8°Ω41'15	0°-44'-50	opposition	4220 Feb 16 10:05	26°Ω33'45	0°-16'-26
min. Earth dist.	4212 Jan 29 15:22	8°Ω41'42	28.88851 AU	min. Earth dist.	4220 Feb 16 09:51	26°Ω33'46	28.96247 AU
direct	4212 Apr 17 00:27	7°Ω16'43		direct	4220 May 04 21:45	25°Ω09'07	
conjunction	4212 Jul 30 21:18	9°Ω47'27	0°-40'-23	conjunction	4220 Aug 18 12:45	27°Ω40'18	0°-13'-40
minimum elong	4212 Jul 30 21:18	9°Ω47'27	0°40'24	minimum elong	4220 Aug 18 12:45	27°Ω40'18	0°13'41
max. Earth dist.	4212 Jul 31 03:44	9°Ω48'03	30.89121 AU	behind sun begin	4220 Aug 18 09:21	27°Ω40'00	
retrograde	4212 Nov 13 23:34	12°Ω19'53		behind sun end	4220 Aug 18 16:09	27°Ω40'36	
opposition	4213 Jan 31 08:17	10°Ω55'28	0°-41'-28	max. Earth dist.	4220 Aug 18 11:53	27°Ω40'14	30.96726 AU
min. Earth dist.	4213 Jan 31 03:23	10°Ω55'49	28.89451 AU		4220 Nov 05 16:14	0°൬	
direct	4213 Apr 19 12:51	9°Ω30'53		retrograde	4220 Dec 01 22:55	0°൬11'39	
conjunction	4213 Aug 02 11:12	12°Ω01'38	0°-37'-12		4220 Dec 28 12:13	30°℞Ω	
minimum elong	4213 Aug 02 11:12	12°Ω01'38	0°37'13	opposition	4221 Feb 17 20:36	28°Ω47'54	0°-12'-43
max. Earth dist.	4213 Aug 02 16:25	12°Ω02'07	30.89776 AU	min. Earth dist.	4221 Feb 17 20:49	28°Ω47'53	28.97184 AU
retrograde	4213 Nov 16 13:25	14°Ω33'54		direct	4221 May 07 09:18	27°Ω23'13	
opposition	4214 Feb 02 18:48	13°Ω09'31	0°-38'-2	conjunction	4221 Aug 21 02:45	29°Ω54'27	0°-10'-12
min. Earth dist.	4214 Feb 02 13:34	13°Ω09'54	28.90154 AU	minimum elong	4221 Aug 21 02:45	29°Ω54'27	0°10'13
direct	4214 Apr 22 01:41	11°Ω44'54		behind sun begin	4221 Aug 20 21:33	29°Ω53'59	
conjunction	4214 Aug 05 01:08	14°Ω15'41	0°-33'-58	behind sun end	4221 Aug 21 07:57	29°Ω54'55	
minimum elong	4214 Aug 05 01:08	14°Ω15'41	0°33'59	max. Earth dist.	4221 Aug 21 01:38	29°Ω54'21	30.97605 AU
max. Earth dist.	4214 Aug 05 06:00	14°Ω16'08	30.90531 AU		4221 Aug 23 14:31	0°൬	
retrograde	4214 Aug 25 03:21	15°Ω		retrograde	4221 Dec 04 10:10	2°൬25'37	
opposition	4214 Nov 19 00:37	16°Ω47'48		opposition	4222 Feb 20 07:06	1°൬01'55	0°-9'00
min. Earth dist.	4215 Feb 05 05:29	15°Ω23'29	0°-34'-32	min. Earth dist.	4222 Feb 20 09:02	1°൬01'47	28.98016 AU
	4215 Feb 05 01:46	15°Ω23'45	28.90973 AU		4222 Apr 02 06:04	30°℞Ω	
	4215 Feb 19 05:03	15°℞Ω		direct	4222 May 09 21:58	29°Ω37'12	
direct	4215 Apr 24 12:31	13°Ω58'50			4222 Jun 16 04:10	0°൬	
	4215 Jun 25 18:06	15°Ω		conjunction	4222 Aug 23 16:34	2°൬08'26	0°-6'-43
conjunction	4215 Aug 07 15:07	16°Ω29'41	0°-30'-40	minimum elong	4222 Aug 23 16:34	2°൬08'26	0°06'44
minimum elong	4215 Aug 07 15:07	16°Ω29'41	0°30'42	behind sun begin	4222 Aug 23 10:25	2°൬07'54	
max. Earth dist.	4215 Aug 07 19:28	16°Ω30'05	30.91422 AU	behind sun end	4222 Aug 23 22:43	2°൬08'59	
retrograde	4215 Nov 21 12:22	19°Ω01'38		max. Earth dist.	4222 Aug 23 13:38	2°൬08'12	30.98406 AU
opposition	4216 Feb 07 15:53	17°Ω37'25	0°-31'00	retrograde	4222 Dec 06 23:40	4°൬39'26	
min. Earth dist.	4216 Feb 07 11:44	17°Ω37'43	28.91918 AU	opposition	4223 Feb 22 17:28	3°൬15'45	0°-5'-16
direct	4216 Apr 26 01:09	16°Ω12'45		min. Earth dist.	4223 Feb 22 19:26	3°൬15'37	28.98775 AU
conjunction	4216 Aug 09 05:00	18°Ω43'40	0°-27'-20	direct	4223 May 12 11:54	1°൬50'58	
minimum elong	4216 Aug 09 05:00	18°Ω43'40	0°27'22	conjunction	4223 Aug 26 06:24	4°൬22'14	0°-3'-14
max. Earth dist.	4216 Aug 09 08:11	18°Ω43'57	30.92429 AU	minimum elong	4223 Aug 26 06:23	4°൬22'14	0°03'15
retrograde	4216 Nov 23 00:00	21°Ω15'30		behind sun begin	4223 Aug 25 23:49	4°൬21'39	
opposition	4217 Feb 09 02:32	19°Ω51'23	0°-27'-25	behind sun end	4223 Aug 26 12:57	4°൬22'48	
min. Earth dist.	4217 Feb 08 23:42	19°Ω51'35	28.92982 AU	max. Earth dist.	4223 Aug 26 02:50	4°൬21'57	30.99132 AU
direct	4217 Apr 28 10:42	18°Ω26'44		retrograde	4223 Dec 09 10:07	6°൬53'01	
conjunction	4217 Aug 11 18:50	20°Ω57'43	0°-23'-58	opposition	4224 Feb 25 03:51	5°൬29'22	0°-1'-32
minimum elong	4217 Aug 11 18:50	20°Ω57'43	0°23'59	min. Earth dist.	4224 Feb 25 07:41	5°൬29'06	28.99493 AU
max. Earth dist.	4217 Aug 11 22:08	20°Ω58'01	30.93536 AU	direct	4224 May 13 23:49	4°൬04'32	
retrograde	4217 Nov 25 11:23	23°Ω29'27		asc. node	4224 Jul 26 01:20	5°൬25'27	
opposition	4218 Feb 11 13:02	22°Ω05'26	0°-23'-47	conjunction	4224 Aug 27 20:01	6°൬35'46	0°00'19
min. Earth dist.	4218 Feb 11 10:26	22°Ω05'37	28.94098 AU	minimum elong	4224 Aug 27 20:02	6°൬35'46	0°00'20
direct	4218 Apr 30 22:12	20°Ω40'48		behind sun begin	4224 Aug 27 13:28	6°൬35'11	
conjunction	4218 Aug 14 08:46	23°Ω11'52	0°-20'-33	behind sun end	4224 Aug 28 02:36	6°൬36'21	
minimum elong	4218 Aug 14 08:46	23°Ω11'52	0°20'35	max. Earth dist.	4224 Aug 27 15:42	6°൬35'25	30.99857 AU
max. Earth dist.	4218 Aug 14 10:09	23°Ω11'59	30.94660 AU	retrograde	4224 Dec 10 21:51	9°൬06'22	
				opposition	4225 Feb 26 14:06	7°൬42'44	0°02'11
				min. Earth dist.	4225 Feb 26 17:39	7°൬42'29	29.00223 AU

direct	4225 May 16 12:57	6° \mathring{M} 17'50		minimum elong	4232 Sep 15 06:18	24° \mathring{M} 18'50	0°27'45
				max. Earth dist.	4232 Sep 14 20:27	24° \mathring{M} 17'56	31.08334 AU
conjunction	4225 Aug 30 09:23	8° \mathring{M} 49'04	0°03'52	retrograde	4232 Dec 28 13:01	26° \mathring{M} 48'15	
minimum elong	4225 Aug 30 09:22	8° \mathring{M} 49'04	0°03'52	opposition	4233 Mar 16 00:03	25° \mathring{M} 25'11	0°31'23
behind sun begin	4225 Aug 30 02:51	8° \mathring{M} 48'29		min. Earth dist.	4233 Mar 16 09:35	25° \mathring{M} 24'31	29.08906 AU
behind sun end	4225 Aug 30 15:54	8° \mathring{M} 49'39		direct	4233 Jun 03 09:20	24° \mathring{M} 00'14	
max. Earth dist.	4225 Aug 30 03:56	8° \mathring{M} 48'36	31.00605 AU				
retrograde	4225 Dec 13 09:14	11° \mathring{M} 19'28		conjunction	4233 Sep 17 19:22	26° \mathring{M} 31'39	0°31'02
opposition	4226 Mar 01 00:26	9° \mathring{M} 55'52	0°05'55	minimum elong	4233 Sep 17 19:22	26° \mathring{M} 31'39	0°31'01
min. Earth dist.	4226 Mar 01 05:18	9° \mathring{M} 55'31	29.01014 AU	max. Earth dist.	4233 Sep 17 08:31	26° \mathring{M} 30'40	31.09419 AU
direct	4226 May 18 23:35	8° \mathring{M} 30'54		retrograde	4233 Dec 31 00:58	29° \mathring{M} 00'56	
				opposition	4234 Mar 18 10:20	27° \mathring{M} 37'56	0°34'52
conjunction	4226 Sep 01 22:53	11° \mathring{M} 02'08	0°07'20	min. Earth dist.	4234 Mar 18 19:49	27° \mathring{M} 37'16	29.09927 AU
minimum elong	4226 Sep 01 22:53	11° \mathring{M} 02'08	0°07'20	direct	4234 Jun 05 22:39	26° \mathring{M} 12'59	
behind sun begin	4226 Sep 01 16:52	11° \mathring{M} 01'35					
behind sun end	4226 Sep 02 04:54	11° \mathring{M} 02'40		conjunction	4234 Sep 20 08:30	28° \mathring{M} 44'25	0°34'16
max. Earth dist.	4226 Sep 01 17:31	11° \mathring{M} 01'39	31.01439 AU	minimum elong	4234 Sep 20 08:30	28° \mathring{M} 44'25	0°34'16
retrograde	4226 Dec 15 19:07	13° \mathring{M} 32'20		max. Earth dist.	4234 Sep 19 20:15	28° \mathring{M} 43'17	31.10379 AU
opposition	4227 Mar 03 10:32	12° \mathring{M} 08'47	0°09'37		4234 Oct 25 20:47	0° \mathring{M}	
min. Earth dist.	4227 Mar 03 15:26	12° \mathring{M} 08'26	29.01894 AU	retrograde	4235 Jan 02 12:31	1° \mathring{M} 13'33	
direct	4227 May 21 11:50	10° \mathring{M} 43'46			4235 Mar 15 06:25	30° \mathring{R} \mathring{M}	
				opposition	4235 Mar 20 20:36	29° \mathring{M} 50'36	0°38'18
conjunction	4227 Sep 04 12:11	13° \mathring{M} 14'59	0°10'47	min. Earth dist.	4235 Mar 21 07:40	29° \mathring{M} 49'49	29.10848 AU
minimum elong	4227 Sep 04 12:11	13° \mathring{M} 14'59	0°10'46	direct	4235 Jun 08 09:41	28° \mathring{M} 25'38	
behind sun begin	4227 Sep 04 07:12	13° \mathring{M} 14'33			4235 Aug 27 14:41	0° \mathring{M}	
behind sun end	4227 Sep 04 17:10	13° \mathring{M} 15'26					
max. Earth dist.	4227 Sep 04 05:18	13° \mathring{M} 14'22	31.02380 AU	conjunction	4235 Sep 22 21:35	0° \mathring{M} 57'04	0°37'27
retrograde	4227 Dec 18 05:30	15° \mathring{M} 45'03		minimum elong	4235 Sep 22 21:34	0° \mathring{M} 57'04	0°37'27
opposition	4228 Mar 04 20:48	14° \mathring{M} 21'32	0°13'19	max. Earth dist.	4235 Sep 22 09:05	0° \mathring{M} 55'55	31.11255 AU
min. Earth dist.	4228 Mar 05 02:18	14° \mathring{M} 21'09	29.02911 AU	retrograde	4236 Jan 04 22:11	3° \mathring{M} 26'02	
direct	4228 May 22 22:21	12° \mathring{M} 56'30		opposition	4236 Mar 22 06:54	2° \mathring{M} 03'08	0°41'40
				min. Earth dist.	4236 Mar 22 18:17	2° \mathring{M} 02'20	29.11680 AU
conjunction	4228 Sep 06 01:24	15° \mathring{M} 27'44	0°14'14	direct	4236 Jun 09 22:29	0° \mathring{M} 38'08	
minimum elong	4228 Sep 06 01:24	15° \mathring{M} 27'44	0°14'14				
behind sun begin	4228 Sep 05 22:27	15° \mathring{M} 27'29		conjunction	4236 Sep 24 10:13	3° \mathring{M} 09'33	0°40'35
behind sun end	4228 Sep 06 04:21	15° \mathring{M} 28'00		minimum elong	4236 Sep 24 10:13	3° \mathring{M} 09'33	0°40'35
max. Earth dist.	4228 Sep 05 19:11	15° \mathring{M} 27'11	31.03458 AU	max. Earth dist.	4236 Sep 23 20:04	3° \mathring{M} 08'15	31.12060 AU
retrograde	4228 Dec 19 15:00	17° \mathring{M} 57'39		retrograde	4237 Jan 06 08:07	5° \mathring{M} 38'23	
opposition	4229 Mar 07 07:04	16° \mathring{M} 34'13	0°17'00	opposition	4237 Mar 24 17:10	4° \mathring{M} 15'31	0°44'59
min. Earth dist.	4229 Mar 07 13:12	16° \mathring{M} 33'47	29.04046 AU	min. Earth dist.	4237 Mar 25 05:18	4° \mathring{M} 14'40	29.12482 AU
direct	4229 May 25 10:04	15° \mathring{M} 09'11		direct	4237 Jun 12 09:12	2° \mathring{M} 50'29	
conjunction	4229 Sep 08 14:31	17° \mathring{M} 40'27	0°17'39	conjunction	4237 Sep 26 23:01	5° \mathring{M} 21'52	0°43'39
minimum elong	4229 Sep 08 14:31	17° \mathring{M} 40'27	0°17'38	minimum elong	4237 Sep 26 23:01	5° \mathring{M} 21'52	0°43'38
max. Earth dist.	4229 Sep 08 06:39	17° \mathring{M} 39'44	31.04656 AU	max. Earth dist.	4237 Sep 26 09:23	5° \mathring{M} 20'37	31.12851 AU
retrograde	4229 Dec 22 03:10	20° \mathring{M} 10'14		retrograde	4238 Jan 08 16:46	7° \mathring{M} 50'32	
opposition	4230 Mar 09 17:07	18° \mathring{M} 46'53	0°20'39	opposition	4238 Mar 27 03:18	6° \mathring{M} 27'42	0°48'13
min. Earth dist.	4230 Mar 09 23:18	18° \mathring{M} 46'27	29.05289 AU	min. Earth dist.	4238 Mar 27 16:18	6° \mathring{M} 26'47	29.13277 AU
direct	4230 May 27 20:31	17° \mathring{M} 21'53		direct	4238 Jun 14 20:43	5° \mathring{M} 02'38	
conjunction	4230 Sep 11 03:51	19° \mathring{M} 53'12	0°21'03	conjunction	4238 Sep 29 11:34	7° \mathring{M} 34'00	0°46'38
minimum elong	4230 Sep 11 03:51	19° \mathring{M} 53'12	0°21'03	minimum elong	4238 Sep 29 11:34	7° \mathring{M} 34'00	0°46'39
max. Earth dist.	4230 Sep 10 20:11	19° \mathring{M} 52'30	31.05913 AU	max. Earth dist.	4238 Sep 28 20:18	7° \mathring{M} 32'36	31.13667 AU
retrograde	4230 Dec 24 13:32	22° \mathring{M} 22'52		retrograde	4239 Jan 11 04:00	10° \mathring{M} 02'32	
opposition	4231 Mar 12 03:26	20° \mathring{M} 59'37	0°24'16	opposition	4239 Mar 29 13:29	8° \mathring{M} 39'43	0°51'23
min. Earth dist.	4231 Mar 12 11:10	20° \mathring{M} 59'04	29.06548 AU	min. Earth dist.	4239 Mar 30 02:15	8° \mathring{M} 38'50	29.14132 AU
direct	4231 May 30 08:40	19° \mathring{M} 34'38		direct	4239 Jun 17 07:00	7° \mathring{M} 14'37	
				max. Earth dist.	4239 Oct 01 09:26	9° \mathring{M} 44'38	31.14550 AU
conjunction	4231 Sep 13 17:02	22° \mathring{M} 06'00	0°24'25				
minimum elong	4231 Sep 13 17:02	22° \mathring{M} 06'00	0°24'25	conjunction	4239 Oct 02 00:05	9° \mathring{M} 45'59	0°49'34
max. Earth dist.	4231 Sep 13 07:43	22° \mathring{M} 05'09	31.07162 AU	minimum elong	4239 Oct 02 00:05	9° \mathring{M} 45'59	0°49'34
retrograde	4231 Dec 27 02:23	24° \mathring{M} 35'32		retrograde	4240 Jan 13 12:54	12° \mathring{M} 14'22	
opposition	4232 Mar 13 13:37	23° \mathring{M} 12'23	0°27'50	opposition	4240 Mar 30 23:48	10° \mathring{M} 51'36	0°54'28
min. Earth dist.	4232 Mar 13 21:17	23° \mathring{M} 11'51	29.07770 AU	min. Earth dist.	4240 Mar 31 13:39	10° \mathring{M} 50'38	29.15071 AU
direct	4232 May 31 21:48	21° \mathring{M} 47'26		direct	4240 Jun 18 19:17	9° \mathring{M} 26'31	
conjunction	4232 Sep 15 06:18	24° \mathring{M} 18'50	0°27'45	conjunction	4240 Oct 03 12:23	11° \mathring{M} 57'51	0°52'25

minimum elong	4240 Oct 03 12:23	11° $\underline{\text{A}}$ 57'51	0°52'26	retrograde	4249 Feb 01 10:38	1° M 59'51	
max. Earth dist.	4240 Oct 02 20:39	11° $\underline{\text{A}}$ 56'23	31.15554 AU	opposition	4249 Apr 19 21:32	0° M 37'35	1°18'08
retrograde	4241 Jan 15 00:38	14° $\underline{\text{A}}$ 26'07		min. Earth dist.	4249 Apr 20 16:12	0° M 36'18	29.23811 AU
opposition	4241 Apr 02 09:58	13° $\underline{\text{A}}$ 03'24	0°57'29		4249 May 13 06:42	30° R $\underline{\text{A}}$	
min. Earth dist.	4241 Apr 02 23:06	13° $\underline{\text{A}}$ 02'29	29.16136 AU	direct	4249 Jul 09 06:26	29° $\underline{\text{A}}$ 12'37	
direct	4241 Jun 21 07:51	11° $\underline{\text{A}}$ 38'19			4249 Sep 02 15:36	0° M	
max. Earth dist.	4241 Oct 05 09:08	14° $\underline{\text{A}}$ 08'14	31.16666 AU	max. Earth dist.	4249 Oct 23 04:31	1° M 41'53	31.24010 AU
conjunction	4241 Oct 06 00:42	14° $\underline{\text{A}}$ 09'40	0°55'12	conjunction	4249 Oct 24 01:18	1° M 43'48	1°14'09
minimum elong	4241 Oct 06 00:41	14° $\underline{\text{A}}$ 09'40	0°55'11	minimum elong	4249 Oct 24 01:18	1° M 43'48	1°14'09
retrograde	4242 Jan 17 10:47	16° $\underline{\text{A}}$ 37'51		retrograde	4250 Feb 03 21:31	4° M 11'07	
opposition	4242 Apr 04 20:20	15° $\underline{\text{A}}$ 15'12	1°00'24	opposition	4250 Apr 22 07:58	2° M 48'51	1°20'14
min. Earth dist.	4242 Apr 05 10:49	15° $\underline{\text{A}}$ 14'12	29.17296 AU	min. Earth dist.	4250 Apr 23 02:05	2° M 47'36	29.24328 AU
direct	4242 Jun 23 18:44	13° $\underline{\text{A}}$ 50'09		direct	4250 Jul 11 18:43	1° M 23'50	
conjunction	4242 Oct 08 12:59	16° $\underline{\text{A}}$ 21'31	0°57'53	conjunction	4250 Oct 26 12:59	3° M 54'59	1°16'04
minimum elong	4242 Oct 08 12:59	16° $\underline{\text{A}}$ 21'31	0°57'54	minimum elong	4250 Oct 26 12:59	3° M 54'59	1°16'05
max. Earth dist.	4242 Oct 07 20:59	16° $\underline{\text{A}}$ 20'02	31.17857 AU	max. Earth dist.	4250 Oct 25 16:21	3° M 53'05	31.24502 AU
retrograde	4243 Jan 19 22:39	18° $\underline{\text{A}}$ 49'35		retrograde	4251 Feb 06 06:59	6° M 22'12	
opposition	4243 Apr 07 06:29	17° $\underline{\text{A}}$ 27'03	1°03'14	opposition	4251 Apr 24 18:32	4° M 59'56	1°22'13
min. Earth dist.	4243 Apr 07 20:36	17° $\underline{\text{A}}$ 26'04	29.18493 AU	min. Earth dist.	4251 Apr 25 13:56	4° M 58'36	29.24830 AU
direct	4243 Jun 26 08:09	16° $\underline{\text{A}}$ 02'02		direct	4251 Jul 14 05:40	3° M 34'54	
max. Earth dist.	4243 Oct 10 08:23	18° $\underline{\text{A}}$ 31'51	31.19043 AU	max. Earth dist.	4251 Oct 28 03:44	6° M 04'05	31.25021 AU
conjunction	4243 Oct 11 01:15	18° $\underline{\text{A}}$ 33'25	1°00'30	conjunction	4251 Oct 29 00:27	6° M 06'00	1°17'52
minimum elong	4243 Oct 11 01:15	18° $\underline{\text{A}}$ 33'25	1°00'30	minimum elong	4251 Oct 29 00:27	6° M 06'00	1°17'52
retrograde	4244 Jan 22 10:38	21° $\underline{\text{A}}$ 01'24		retrograde	4252 Feb 08 17:59	8° M 33'07	
opposition	4244 Apr 08 16:59	19° $\underline{\text{A}}$ 38'56	1°05'58	opposition	4252 Apr 26 05:05	7° M 10'52	1°24'05
min. Earth dist.	4244 Apr 09 08:17	19° $\underline{\text{A}}$ 37'52	29.19673 AU	min. Earth dist.	4252 Apr 26 23:38	7° M 09'35	29.25376 AU
direct	4244 Jun 27 19:43	18° $\underline{\text{A}}$ 13'58		direct	4252 Jul 15 19:23	5° M 45'49	
conjunction	4244 Oct 12 13:21	20° $\underline{\text{A}}$ 45'21	1°03'01	conjunction	4252 Oct 30 11:39	8° M 16'53	1°19'33
minimum elong	4244 Oct 12 13:21	20° $\underline{\text{A}}$ 45'21	1°03'02	minimum elong	4252 Oct 30 11:39	8° M 16'53	1°19'34
max. Earth dist.	4244 Oct 11 20:31	20° $\underline{\text{A}}$ 43'47	31.20180 AU	max. Earth dist.	4252 Oct 29 14:37	8° M 14'56	31.25600 AU
retrograde	4245 Jan 23 20:10	23° $\underline{\text{A}}$ 13'14		retrograde	4253 Feb 10 05:24	10° M 43'56	
opposition	4245 Apr 11 03:26	21° $\underline{\text{A}}$ 50'50	1°08'37	opposition	4253 Apr 28 15:43	9° M 21'42	1°25'49
min. Earth dist.	4245 Apr 11 19:02	21° $\underline{\text{A}}$ 49'45	29.20755 AU	min. Earth dist.	4253 Apr 29 10:48	9° M 20'22	29.26016 AU
direct	4245 Jun 30 08:49	20° $\underline{\text{A}}$ 25'54		direct	4253 Jul 18 07:02	7° M 56'41	
max. Earth dist.	4245 Oct 14 06:58	22° $\underline{\text{A}}$ 55'33	31.21200 AU	conjunction	4253 Nov 01 22:59	10° M 27'43	1°21'08
conjunction	4245 Oct 15 01:29	22° $\underline{\text{A}}$ 57'16	1°05'27	minimum elong	4253 Nov 01 22:59	10° M 27'43	1°21'07
minimum elong	4245 Oct 15 01:28	22° $\underline{\text{A}}$ 57'16	1°05'26	max. Earth dist.	4253 Nov 01 02:38	10° M 25'50	31.26288 AU
retrograde	4246 Jan 26 06:44	25° $\underline{\text{A}}$ 25'02		retrograde	4254 Feb 12 14:32	12° M 54'42	
opposition	4246 Apr 13 13:50	24° $\underline{\text{A}}$ 02'42	1°11'09	opposition	4254 May 01 02:11	11° M 32'32	1°27'26
min. Earth dist.	4246 Apr 14 06:12	24° $\underline{\text{A}}$ 01'34	29.21723 AU	min. Earth dist.	4254 May 01 21:00	11° M 31'14	29.26738 AU
direct	4246 Jul 02 19:35	22° $\underline{\text{A}}$ 37'46		direct	4254 Jul 20 19:57	10° M 07'33	
conjunction	4246 Oct 17 13:45	25° $\underline{\text{A}}$ 09'07	1°07'47	conjunction	4254 Nov 04 10:12	12° M 38'35	1°22'35
minimum elong	4246 Oct 17 13:45	25° $\underline{\text{A}}$ 09'07	1°07'47	minimum elong	4254 Nov 04 10:11	12° M 38'35	1°22'36
max. Earth dist.	4246 Oct 16 19:34	25° $\underline{\text{A}}$ 07'26	31.22089 AU	max. Earth dist.	4254 Nov 03 12:52	12° M 36'37	31.27050 AU
retrograde	4247 Jan 28 15:37	27° $\underline{\text{A}}$ 36'46			4255 Jan 28 01:38	15° M	
opposition	4247 Apr 16 00:28	26° $\underline{\text{A}}$ 14'29	1°13'36	retrograde	4255 Feb 15 01:18	15° M 05'32	
min. Earth dist.	4247 Apr 16 17:51	26° $\underline{\text{A}}$ 13'16	29.22537 AU		4255 Mar 05 02:55	15° R M	
direct	4247 Jul 05 07:36	24° $\underline{\text{A}}$ 49'33		opposition	4255 May 03 12:51	13° M 43'26	1°28'56
max. Earth dist.	4247 Oct 19 05:43	27° $\underline{\text{A}}$ 19'00	31.22836 AU	min. Earth dist.	4255 May 04 07:43	13° M 42'08	29.27533 AU
conjunction	4247 Oct 20 01:38	27° $\underline{\text{A}}$ 20'51	1°10'01	direct	4255 Jul 23 06:39	12° M 18'31	
minimum elong	4247 Oct 20 01:37	27° $\underline{\text{A}}$ 20'51	1°10'00	conjunction	4255 Nov 06 21:20	14° M 49'33	1°23'55
retrograde	4248 Jan 31 02:24	29° $\underline{\text{A}}$ 48'24		minimum elong	4255 Nov 06 21:20	14° M 49'33	1°23'55
opposition	4248 Apr 17 10:58	28° $\underline{\text{A}}$ 26'07	1°15'55	max. Earth dist.	4255 Nov 06 01:06	14° M 47'41	31.27847 AU
min. Earth dist.	4248 Apr 18 04:14	28° $\underline{\text{A}}$ 24'55	29.23228 AU		4255 Nov 11 13:45	15° M	
direct	4248 Jul 06 18:32	27° $\underline{\text{A}}$ 01'10		retrograde	4256 Feb 17 10:19	17° M 16'28	
conjunction	4248 Oct 21 13:38	29° $\underline{\text{A}}$ 32'25	1°12'08	opposition	4256 May 04 23:40	15° M 54'27	1°30'17
minimum elong	4248 Oct 21 13:37	29° $\underline{\text{A}}$ 32'25	1°12'09	min. Earth dist.	4256 May 05 19:08	15° M 53'06	29.28320 AU
max. Earth dist.	4248 Oct 20 18:05	29° $\underline{\text{A}}$ 30'36	31.23462 AU	direct	4256 Jun 09 17:37	15° R M	
	4248 Nov 03 00:09	0° M			4256 Jul 24 18:29	14° M 29'35	
					4256 Sep 06 16:07	15° M	

max. Earth dist.	4256 Nov 07 10:55	16° M 58'37	31.28617 AU	min. Earth dist.	4264 May 23 11:33	3° Δ 20'18	29.31083 AU
				direct	4264 Aug 11 16:35	1° Δ 56'52	
conjunction	4256 Nov 08 08:23	17° M 00'37	1°25'07				
minimum elong	4256 Nov 08 08:23	17° M 00'37	1°25'09	conjunction	4264 Nov 25 22:31	4° Δ 27'26	1°30'19
retrograde	4257 Feb 18 21:15	19° M 27'31		minimum elong	4264 Nov 25 22:31	4° Δ 27'26	1°30'20
opposition	4257 May 07 10:18	18° M 05'33	1°31'31	max. Earth dist.	4264 Nov 25 01:25	4° Δ 25'28	31.31053 AU
min. Earth dist.	4257 May 08 05:20	18° M 04'14	29.29063 AU	retrograde	4265 Mar 08 04:24	6° Δ 53'56	
direct	4257 Jul 27 05:01	16° M 40'44		opposition	4265 May 25 02:14	5° Δ 31'55	1°36'32
				min. Earth dist.	4265 May 25 22:44	5° Δ 30'31	29.31245 AU
conjunction	4257 Nov 10 19:34	19° M 11'45	1°26'13	direct	4265 Aug 14 05:29	4° Δ 07'06	
minimum elong	4257 Nov 10 19:34	19° M 11'45	1°26'13	max. Earth dist.	4265 Nov 27 11:01	6° Δ 35'33	31.31270 AU
max. Earth dist.	4257 Nov 09 22:42	19° M 09'49	31.29301 AU				
retrograde	4258 Feb 21 05:20	21° M 38'38		conjunction	4265 Nov 28 08:44	6° Δ 37'35	1°30'24
opposition	4258 May 09 21:17	20° M 16'42	1°32'37	minimum elong	4265 Nov 28 08:44	6° Δ 37'35	1°30'24
min. Earth dist.	4258 May 10 17:34	20° M 15'19	29.29691 AU	retrograde	4266 Mar 10 14:51	9° Δ 04'04	
direct	4258 Jul 29 16:19	18° M 51'56		opposition	4266 May 27 13:16	7° Δ 42'04	1°36'33
max. Earth dist.	4258 Nov 12 08:38	21° M 20'53	31.29867 AU	min. Earth dist.	4266 May 28 08:32	7° Δ 40'45	29.31513 AU
				direct	4266 Aug 16 16:38	6° Δ 17'16	
conjunction	4258 Nov 13 06:34	21° M 22'55	1°27'11				
minimum elong	4258 Nov 13 06:34	21° M 22'55	1°27'11	conjunction	4266 Nov 30 19:00	8° Δ 47'43	1°30'21
retrograde	4259 Feb 23 16:02	23° M 49'45		minimum elong	4266 Nov 30 19:00	8° Δ 47'43	1°30'22
opposition	4259 May 12 08:08	22° M 27'52	1°33'35	max. Earth dist.	4266 Nov 29 22:35	8° Δ 45'48	31.31579 AU
min. Earth dist.	4259 May 13 03:45	22° M 26'31	29.30187 AU	retrograde	4267 Mar 12 22:51	11° Δ 14'12	
direct	4259 Aug 01 03:28	21° M 03'06		opposition	4267 May 30 00:31	9° Δ 52'13	1°36'26
				min. Earth dist.	4267 May 30 20:21	9° Δ 50'52	29.31861 AU
conjunction	4259 Nov 15 17:35	23° M 34'03	1°28'01	direct	4267 Aug 19 03:37	8° Δ 27'29	
minimum elong	4259 Nov 15 17:35	23° M 34'03	1°28'01	max. Earth dist.	4267 Dec 02 08:28	10° Δ 55'57	31.31969 AU
max. Earth dist.	4259 Nov 14 19:43	23° M 32'01	31.30287 AU				
retrograde	4260 Feb 26 01:44	26° M 00'51		conjunction	4267 Dec 03 05:06	10° Δ 57'53	1°30'10
opposition	4260 May 13 19:13	24° M 38'58	1°34'24	minimum elong	4267 Dec 03 05:06	10° Δ 57'53	1°30'10
min. Earth dist.	4260 May 14 16:06	24° M 37'32	29.30549 AU	retrograde	4268 Mar 14 09:29	13° Δ 24'24	
direct	4260 Aug 02 13:41	23° M 14'13		opposition	4268 May 31 11:40	12° Δ 02'28	1°36'10
max. Earth dist.	4260 Nov 16 06:21	25° M 43'02	31.30586 AU	min. Earth dist.	4268 Jun 01 06:12	12° Δ 01'12	29.32262 AU
				direct	4268 Aug 20 14:15	10° Δ 37'47	
conjunction	4260 Nov 17 04:20	25° M 45'05	1°28'44				
minimum elong	4260 Nov 17 04:20	25° M 45'05	1°28'45	conjunction	4268 Dec 04 15:11	13° Δ 08'10	1°29'51
retrograde	4261 Feb 27 12:32	28° M 11'50		minimum elong	4268 Dec 04 15:11	13° Δ 08'10	1°29'52
opposition	4261 May 16 06:10	26° M 49'56	1°35'06	max. Earth dist.	4268 Dec 03 19:08	13° Δ 06'17	31.32366 AU
min. Earth dist.	4261 May 17 02:27	26° M 48'32	29.30776 AU	retrograde	4269 Mar 16 19:24	15° Δ 34'44	
direct	4261 Aug 05 03:47	25° M 25'10		opposition	4269 Jun 02 23:03	14° Δ 12'49	1°35'46
				min. Earth dist.	4269 Jun 03 18:26	14° Δ 11'30	29.32649 AU
conjunction	4261 Nov 19 15:07	27° M 55'59	1°29'19	direct	4269 Aug 22 23:59	12° Δ 48'13	
minimum elong	4261 Nov 19 15:07	27° M 55'59	1°29'19	max. Earth dist.	4269 Dec 06 05:37	15° Δ 16'43	31.32727 AU
max. Earth dist.	4261 Nov 18 16:29	27° M 53'52	31.30755 AU				
	4262 Jan 24 08:00	0° Δ		conjunction	4269 Dec 07 01:20	15° Δ 18'34	1°29'25
retrograde	4262 Mar 01 23:51	0° Δ 22'39		minimum elong	4269 Dec 07 01:20	15° Δ 18'34	1°29'24
	4262 Apr 08 12:14	30° R M		retrograde	4270 Mar 19 06:12	17° Δ 45'10	
opposition	4262 May 18 17:04	29° M 00'43	1°35'40	opposition	4270 Jun 05 10:19	16° Δ 23'18	1°35'13
min. Earth dist.	4262 May 19 14:04	28° M 59'17	29.30909 AU	min. Earth dist.	4270 Jun 06 04:51	16° Δ 22'02	29.32960 AU
direct	4262 Aug 07 15:26	27° M 35'56		direct	4270 Aug 25 12:50	14° Δ 58'45	
	4262 Nov 19 02:13	0° Δ					
max. Earth dist.	4262 Nov 21 03:55	0° Δ 04'38	31.30856 AU	conjunction	4270 Dec 09 11:29	17° Δ 29'05	1°28'51
				minimum elong	4270 Dec 09 11:29	17° Δ 29'05	1°28'51
conjunction	4262 Nov 22 01:48	0° Δ 06'40	1°29'47	max. Earth dist.	4270 Dec 08 15:21	17° Δ 27'12	31.32989 AU
minimum elong	4262 Nov 22 01:48	0° Δ 06'40	1°29'48	retrograde	4271 Mar 21 18:14	19° Δ 55'45	
retrograde	4263 Mar 04 08:43	2° Δ 33'17		opposition	4271 Jun 07 21:55	18° Δ 33'53	1°34'33
opposition	4263 May 21 04:09	1° Δ 11'19	1°36'06	min. Earth dist.	4271 Jun 08 16:51	18° Δ 32'36	29.33175 AU
min. Earth dist.	4263 May 22 00:51	1° Δ 09'54	29.30983 AU	direct	4271 Aug 27 23:25	17° Δ 09'24	
	4263 Jul 11 16:51	30° R M					
direct	4263 Aug 10 04:44	29° M 46'30		conjunction	4271 Dec 11 21:32	19° Δ 39'42	1°28'09
	4263 Sep 08 05:15	0° Δ		minimum elong	4271 Dec 11 21:32	19° Δ 39'42	1°28'09
				max. Earth dist.	4271 Dec 11 02:19	19° Δ 37'54	31.33139 AU
conjunction	4263 Nov 24 12:05	2° Δ 17'08	1°30'07	retrograde	4272 Mar 23 03:49	22° Δ 06'24	
minimum elong	4263 Nov 24 12:05	2° Δ 17'08	1°30'07	opposition	4272 Jun 09 09:32	20° Δ 44'33	1°33'44
max. Earth dist.	4263 Nov 23 13:30	2° Δ 15'02	31.30930 AU	min. Earth dist.	4272 Jun 10 04:12	20° Δ 43'17	29.33246 AU
retrograde	4264 Mar 05 19:38	4° Δ 43'42		direct	4272 Aug 29 12:09	19° Δ 20'06	
opposition	4264 May 22 15:12	3° Δ 21'42	1°36'23	max. Earth dist.	4272 Dec 12 11:23	21° Δ 48'28	31.33145 AU

conjunction	4272 Dec 13 07:33	21° 2 50'21	1°27'20	minimum elong	4280 Dec 30 13:05	9° 3 13'44	1°16'29
minimum elong	4272 Dec 13 07:33	21° 2 50'21	1°27'21	max. Earth dist.	4280 Dec 29 22:15	9° 3 12'21	31.31578 AU
retrograde	4273 Mar 25 15:40	24° 2 17'05		retrograde	4281 Apr 11 23:43	11° 3 40'51	
opposition	4273 Jun 11 21:00	22° 2 55'13	1°32'48	opposition	4281 Jun 29 19:05	10° 3 18'48	1°20'41
min. Earth dist.	4273 Jun 12 15:28	22° 2 53'58	29.33189 AU	min. Earth dist.	4281 Jun 30 09:36	10° 3 17'49	29.31603 AU
direct	4273 Aug 31 23:58	21° 2 30'48		direct	4281 Sep 18 19:28	8° 3 54'36	
conjunction	4273 Dec 15 17:43	24° 2 01'00	1°26'23	conjunction	4282 Jan 01 22:35	11° 3 24'17	1°14'35
minimum elong	4273 Dec 15 17:43	24° 2 01'00	1°26'23	minimum elong	4282 Jan 01 22:35	11° 3 24'17	1°14'35
max. Earth dist.	4273 Dec 14 22:43	23° 2 59'14	31.33016 AU	max. Earth dist.	4282 Jan 01 07:14	11° 3 22'51	31.31502 AU
retrograde	4274 Mar 28 01:20	26° 2 27'45		retrograde	4282 Apr 14 12:37	13° 3 51'29	
opposition	4274 Jun 14 08:43	25° 2 05'52	1°31'44	opposition	4282 Jul 02 07:09	12° 3 29'26	1°18'37
min. Earth dist.	4274 Jun 15 03:37	25° 2 04'35	29.32987 AU	min. Earth dist.	4282 Jul 02 21:01	12° 3 28'30	29.31502 AU
direct	4274 Sep 03 13:22	23° 2 41'28		direct	4282 Sep 21 06:56	11° 3 05'18	
max. Earth dist.	4274 Dec 17 07:48	26° 2 09'45	31.32771 AU				
conjunction	4274 Dec 18 03:28	26° 2 11'35	1°25'19	conjunction	4283 Jan 04 08:10	13° 3 34'57	1°12'35
minimum elong	4274 Dec 18 03:28	26° 2 11'35	1°25'20	minimum elong	4283 Jan 04 08:10	13° 3 34'57	1°12'36
retrograde	4275 Mar 30 11:56	28° 2 38'21		max. Earth dist.	4283 Jan 03 18:24	13° 3 33'39	31.31356 AU
opposition	4275 Jun 16 20:21	27° 2 16'26	1°30'32	retrograde	4283 Apr 16 23:04	16° 3 02'15	
min. Earth dist.	4275 Jun 17 14:06	27° 2 15'14	29.32700 AU	opposition	4283 Jul 04 19:26	14° 3 40'11	1°16'27
direct	4275 Sep 06 01:05	25° 2 52'01		min. Earth dist.	4283 Sep 05 09:29	14° 3 39'14	29.31301 AU
				direct	4283 Sep 23 19:52	13° 3 16'06	
conjunction	4275 Dec 20 13:19	28° 2 22'04	1°24'08	conjunction	4284 Jan 06 17:42	15° 3 45'42	1°10'30
minimum elong	4275 Dec 20 13:19	28° 2 22'04	1°24'08	minimum elong	4284 Jan 06 17:42	15° 3 45'42	1°10'30
max. Earth dist.	4275 Dec 19 18:52	28° 2 20'21	31.32456 AU	max. Earth dist.	4284 Jan 06 03:25	15° 3 44'22	31.31106 AU
	4276 Feb 06 02:04	0° 3		retrograde	4284 Apr 18 10:38	18° 3 13'06	
retrograde	4276 Mar 31 19:47	0° 3 48'52		opposition	4284 Jul 06 07:33	16° 3 51'00	1°14'09
	4276 May 28 10:31	30° R 2		min. Earth dist.	4284 Jul 06 20:24	16° 3 50'08	29.30985 AU
opposition	4276 Jun 18 08:06	29° 2 26'54	1°29'12	direct	4284 Sep 25 07:17	15° 3 26'57	
min. Earth dist.	4276 Jun 19 02:21	29° 2 25'39	29.32379 AU				
direct	4276 Sep 07 12:42	28° 2 02'29		conjunction	4285 Jan 08 03:22	17° 3 56'31	1°08'18
	4276 Dec 07 10:13	0° 3		minimum elong	4285 Jan 08 03:22	17° 3 56'31	1°08'19
conjunction	4276 Dec 21 22:51	0° 3 32'26	1°22'50	max. Earth dist.	4285 Jan 07 14:02	17° 3 55'16	31.30710 AU
minimum elong	4276 Dec 21 22:51	0° 3 32'26	1°22'51	retrograde	4285 Apr 20 19:55	20° 3 24'00	
max. Earth dist.	4276 Dec 21 04:31	0° 3 30'43	31.32151 AU	opposition	4285 Jul 08 19:55	19° 3 01'52	1°11'45
retrograde	4277 Apr 03 06:02	2° 3 59'15		min. Earth dist.	4285 Jul 09 09:25	19° 3 00'57	29.30509 AU
opposition	4277 Jun 20 19:43	1° 3 37'15	1°27'45	direct	4285 Sep 27 19:34	17° 3 37'51	
min. Earth dist.	4277 Jun 21 12:20	1° 3 36'07	29.32088 AU	conjunction	4286 Jan 10 12:56	20° 3 07'20	1°06'01
direct	4277 Sep 09 23:52	0° 3 12'50		minimum elong	4286 Jan 10 12:56	20° 3 07'20	1°06'00
				max. Earth dist.	4286 Jan 09 23:32	20° 3 06'05	31.30164 AU
conjunction	4277 Dec 24 08:28	2° 3 42'43	1°21'25	retrograde	4286 Apr 23 06:53	22° 3 34'53	
minimum elong	4277 Dec 24 08:28	2° 3 42'43	1°21'24	opposition	4286 Jul 11 08:09	21° 3 12'43	1°09'16
max. Earth dist.	4277 Dec 23 14:57	2° 3 41'05	31.31887 AU	min. Earth dist.	4286 Jul 11 20:16	21° 3 11'54	29.29875 AU
retrograde	4278 Apr 05 15:33	5° 3 09'36		direct	4286 Sep 30 07:44	19° 3 48'43	
opposition	4278 Jun 23 07:31	3° 3 47'33	1°26'10				
min. Earth dist.	4278 Jun 24 00:24	3° 3 46'24	29.31871 AU	conjunction	4287 Jan 12 22:31	22° 3 18'07	1°03'38
direct	4278 Sep 12 09:51	2° 3 23'10		minimum elong	4287 Jan 12 22:31	22° 3 18'07	1°03'39
				max. Earth dist.	4287 Jan 12 09:31	22° 3 16'54	31.29462 AU
conjunction	4278 Dec 26 18:04	4° 3 52'59	1°19'53	retrograde	4287 Apr 25 16:47	24° 3 45'46	
minimum elong	4278 Dec 26 18:04	4° 3 52'59	1°19'53	opposition	4287 Jul 13 20:39	23° 3 23'31	1°06'40
max. Earth dist.	4278 Dec 26 01:38	4° 3 51'27	31.31725 AU	min. Earth dist.	4287 Jul 14 09:17	23° 3 22'40	29.29117 AU
retrograde	4279 Apr 08 01:52	7° 3 19'55		direct	4287 Oct 02 18:20	21° 3 59'31	
opposition	4279 Jun 25 19:20	5° 3 57'53	1°24'28				
min. Earth dist.	4279 Jun 26 10:40	5° 3 56'50	29.31738 AU	conjunction	4288 Jan 15 07:55	24° 3 28'49	1°01'09
direct	4279 Sep 14 22:00	4° 3 33'33		minimum elong	4288 Jan 15 07:56	24° 3 28'49	1°01'09
max. Earth dist.	4279 Dec 28 11:08	7° 3 01'47	31.31630 AU	max. Earth dist.	4288 Jan 14 20:00	24° 3 27'42	31.28665 AU
				retrograde	4288 Apr 27 02:48	26° 3 56'33	
conjunction	4279 Dec 29 03:27	7° 3 03'19	1°18'14	opposition	4288 Jul 15 08:57	25° 3 34'13	1°03'59
minimum elong	4279 Dec 29 03:27	7° 3 03'19	1°18'13	min. Earth dist.	4288 Jul 15 20:13	25° 3 33'27	29.28274 AU
retrograde	4280 Apr 09 13:47	9° 3 30'20		direct	4288 Oct 04 06:38	24° 3 10'12	
opposition	4280 Jun 27 07:16	8° 3 08'17	1°22'38				
min. Earth dist.	4280 Jun 27 22:24	8° 3 07'15	29.31672 AU	conjunction	4289 Jan 16 17:17	26° 3 39'26	0°58'36
direct	4280 Sep 16 07:14	6° 3 44'01		minimum elong	4289 Jan 16 17:17	26° 3 39'26	0°58'37
				max. Earth dist.	4289 Jan 16 05:18	26° 3 38'18	31.27811 AU
conjunction	4280 Dec 30 13:04	9° 3 13'44	1°16'27	retrograde	4289 Apr 29 14:26	29° 3 07'15	

opposition	4289 Jul 17 21:12	27° $\overline{3}$ 44'50	1°01'12	retrograde	4297 May 17 07:29	16° \approx 35'43	
min. Earth dist.	4289 Jul 18 08:11	27° $\overline{3}$ 44'06	29.27431 AU	opposition	4297 Aug 05 01:38	15° \approx 13'01	0°36'07
direct	4289 Oct 06 15:55	26° $\overline{3}$ 20'49		min. Earth dist.	4297 Aug 05 05:51	15° \approx 12'44	29.22125 AU
					4297 Aug 13 03:01	15° \approx	
conjunction	4290 Jan 19 02:43	28° $\overline{3}$ 49'58	0°55'58	direct	4297 Oct 24 13:20	13° \approx 49'25	
minimum elong	4290 Jan 19 02:43	28° $\overline{3}$ 49'58	0°55'57		4297 Dec 30 21:23	15° \approx	
max. Earth dist.	4290 Jan 18 16:33	28° $\overline{3}$ 49'01	31.26988 AU				
	4290 Feb 20 07:41	0° \approx		conjunction	4298 Feb 05 05:41	16° \approx 18'19	0°32'13
retrograde	4290 May 02 00:29	1° \approx 17'53		minimum elong	4298 Feb 05 05:41	16° \approx 18'19	0°32'13
	4290 Jul 17 13:47	30° \overline{R}		max. Earth dist.	4298 Feb 05 00:41	16° \approx 17'50	31.21670 AU
opposition	4290 Jul 20 09:38	29° $\overline{3}$ 55'25	0°58'21	retrograde	4298 May 19 19:38	18° \approx 47'24	
min. Earth dist.	4290 Jul 20 19:30	29° $\overline{3}$ 54'45	29.26632 AU	opposition	4298 Aug 07 14:35	17° \approx 24'39	0°32'42
direct	4290 Oct 09 04:16	28° $\overline{3}$ 31'25		min. Earth dist.	4298 Aug 07 18:43	17° \approx 24'22	29.21208 AU
	4290 Dec 24 22:46	0° \approx		direct	4298 Oct 26 22:30	16° \approx 01'03	
conjunction	4291 Jan 21 11:51	1° \approx 00'31	0°53'14	conjunction	4299 Feb 07 15:16	18° \approx 29'52	0°29'00
minimum elong	4291 Jan 21 11:52	1° \approx 00'31	0°53'15	minimum elong	4299 Feb 07 15:17	18° \approx 29'52	0°29'01
max. Earth dist.	4291 Jan 21 01:38	0° \approx 59'33	31.26239 AU	max. Earth dist.	4299 Feb 07 11:48	18° \approx 29'33	31.20686 AU
retrograde	4291 May 04 13:39	3° \approx 28'33		retrograde	4299 May 22 06:10	20° \approx 59'06	
opposition	4291 Jul 22 22:04	2° \approx 06'02	0°55'24	opposition	4299 Aug 10 03:31	19° \approx 36'15	0°29'14
min. Earth dist.	4291 Jul 23 06:41	2° \approx 05'27	29.25934 AU	min. Earth dist.	4299 Aug 10 06:52	19° \approx 36'01	29.20151 AU
direct	4291 Oct 11 15:12	0° \approx 42'04		direct	4299 Oct 29 11:22	18° \approx 12'39	
conjunction	4292 Jan 23 21:14	3° \approx 11'09	0°50'27	conjunction	4300 Feb 10 00:47	20° \approx 41'23	0°25'44
minimum elong	4292 Jan 23 21:14	3° \approx 11'09	0°50'27	minimum elong	4300 Feb 10 00:47	20° \approx 41'23	0°25'44
max. Earth dist.	4292 Jan 23 13:02	3° \approx 10'22	31.25583 AU	max. Earth dist.	4300 Feb 09 20:53	20° \approx 41'02	31.19587 AU
retrograde	4292 May 06 00:34	5° \approx 39'19		retrograde	4300 May 24 19:23	23° \approx 10'44	
opposition	4292 Jul 24 10:27	4° \approx 16'46	0°52'22	opposition	4300 Aug 12 16:13	21° \approx 47'46	0°25'43
min. Earth dist.	4292 Jul 24 18:46	4° \approx 16'12	29.25310 AU	min. Earth dist.	4300 Aug 12 18:45	21° \approx 47'36	29.19017 AU
direct	4292 Oct 13 03:18	2° \approx 52'52		direct	4300 Oct 31 21:48	20° \approx 24'08	
conjunction	4293 Jan 25 06:28	5° \approx 21'55	0°47'34	conjunction	4301 Feb 12 10:22	22° \approx 52'49	0°22'26
minimum elong	4293 Jan 25 06:28	5° \approx 21'55	0°47'35	minimum elong	4301 Feb 12 10:22	22° \approx 52'49	0°22'26
max. Earth dist.	4293 Jan 24 22:19	5° \approx 21'09	31.25003 AU	max. Earth dist.	4301 Feb 12 08:14	22° \approx 52'37	31.18425 AU
retrograde	4293 May 08 12:44	7° \approx 50'14		retrograde	4301 May 27 06:06	25° \approx 22'15	
opposition	4293 Jul 26 22:52	6° \approx 27'40	0°49'15	opposition	4301 Aug 15 05:06	23° \approx 59'10	0°22'10
min. Earth dist.	4293 Jul 27 05:28	6° \approx 27'13	29.24745 AU	min. Earth dist.	4301 Aug 15 07:23	23° \approx 59'01	29.17845 AU
direct	4293 Oct 15 14:19	5° \approx 03'49		direct	4301 Nov 03 09:41	22° \approx 35'31	
conjunction	4294 Jan 27 15:47	7° \approx 32'51	0°44'37	conjunction	4302 Feb 14 19:41	25° \approx 04'07	0°19'06
minimum elong	4294 Jan 27 15:47	7° \approx 32'51	0°44'37	minimum elong	4302 Feb 14 19:41	25° \approx 04'07	0°19'05
max. Earth dist.	4294 Jan 27 09:01	7° \approx 32'13	31.24440 AU	max. Earth dist.	4302 Feb 14 17:49	25° \approx 03'56	31.17277 AU
retrograde	4294 May 10 22:55	10° \approx 01'20		retrograde	4302 May 29 18:44	27° \approx 33'40	
opposition	4294 Jul 29 11:33	8° \approx 38'45	0°46'04	opposition	4302 Aug 17 17:54	26° \approx 10'29	0°18'35
min. Earth dist.	4294 Jul 29 18:20	8° \approx 38'17	29.24181 AU	min. Earth dist.	4302 Aug 17 18:17	26° \approx 10'27	29.16729 AU
direct	4294 Oct 18 02:41	7° \approx 14'59		direct	4302 Nov 05 21:12	24° \approx 46'49	
conjunction	4295 Jan 30 01:09	9° \approx 44'00	0°41'37	conjunction	4303 Feb 17 05:12	27° \approx 15'21	0°15'44
minimum elong	4295 Jan 30 01:09	9° \approx 44'00	0°41'37	minimum elong	4303 Feb 17 05:12	27° \approx 15'21	0°15'45
max. Earth dist.	4295 Jan 29 18:55	9° \approx 43'25	31.23878 AU	behind sun begin	4303 Feb 17 03:34	27° \approx 15'12	
retrograde	4295 May 13 11:09	12° \approx 12'38		behind sun end	4303 Feb 17 06:50	27° \approx 15'30	
opposition	4295 Aug 01 00:11	10° \approx 50'01	0°42'49	max. Earth dist.	4303 Feb 17 04:48	27° \approx 15'19	31.16198 AU
min. Earth dist.	4295 Aug 01 05:14	10° \approx 49'41	29.23588 AU	retrograde	4303 Jun 01 06:00	29° \approx 45'02	
direct	4295 Oct 20 14:52	9° \approx 26'19		opposition	4303 Aug 20 06:49	28° \approx 21'46	0°14'58
				min. Earth dist.	4303 Aug 20 07:03	28° \approx 21'45	29.15711 AU
conjunction	4296 Feb 01 10:32	11° \approx 55'18	0°38'32	direct	4303 Nov 08 09:41	26° \approx 58'07	
minimum elong	4296 Feb 01 10:32	11° \approx 55'18	0°38'32				
max. Earth dist.	4296 Feb 01 04:48	11° \approx 54'46	31.23248 AU	conjunction	4304 Feb 19 14:38	29° \approx 26'36	0°12'21
retrograde	4296 May 14 21:24	14° \approx 24'07		minimum elong	4304 Feb 19 14:39	29° \approx 26'36	0°12'21
opposition	4296 Aug 02 13:00	13° \approx 01'28	0°39'30	behind sun begin	4304 Feb 19 10:20	29° \approx 26'13	
min. Earth dist.	4296 Aug 02 18:29	13° \approx 01'06	29.22918 AU	behind sun end	4304 Feb 19 18:57	29° \approx 26'59	
direct	4296 Oct 22 01:19	11° \approx 37'49		max. Earth dist.	4304 Feb 19 15:13	29° \approx 26'39	31.15244 AU
					4304 Mar 05 10:09	0° \approx	
conjunction	4297 Feb 02 20:08	14° \approx 06'46	0°35'24	retrograde	4304 Jun 02 18:35	1° \approx 56'26	
minimum elong	4297 Feb 02 20:08	14° \approx 06'46	0°35'25	opposition	4304 Aug 21 19:34	0° \approx 33'06	0°11'20
max. Earth dist.	4297 Feb 02 15:30	14° \approx 06'19	31.22526 AU	min. Earth dist.	4304 Aug 21 17:40	0° \approx 33'13	29.14803 AU
	4297 Feb 26 19:35	15° \approx			4304 Sep 11 16:47	30° \approx	

direct	4304 Nov 09 22:05	29° 30 09'29		behind sun end	4311 Mar 06 15:43	14° 15 50'43	
	4305 Jan 04 22:35	0° 10		max. Earth dist.	4311 Mar 06 16:48	14° 15 50'50	31.09536 AU
				retrograde	4311 Jun 19 07:28	17° 15 21'27	
conjunction	4305 Feb 21 00:09	1° 15 37'56	0°08'57	opposition	4311 Sep 07 14:49	15° 15 57'50	0°-14'-23
minimum elong	4305 Feb 21 00:09	1° 15 37'56	0°08'58	min. Earth dist.	4311 Sep 07 08:01	15° 15 58'17	29.09000 AU
behind sun begin	4305 Feb 20 18:39	1° 15 37'27		direct	4311 Nov 26 01:56	14° 15 34'34	
behind sun end	4305 Feb 21 05:40	1° 15 38'26					
max. Earth dist.	4305 Feb 21 01:27	1° 15 38'03	31.14381 AU	conjunction	4312 Mar 07 21:18	17° 15 02'59	0°-15'-11
retrograde	4305 Jun 05 05:15	4° 15 07'57		minimum elong	4312 Mar 07 21:18	17° 15 02'59	0°15'12
opposition	4305 Aug 24 08:26	2° 15 44'34	0°07'41	behind sun begin	4312 Mar 07 18:59	17° 15 02'46	
min. Earth dist.	4305 Aug 24 06:34	2° 15 44'41	29.13992 AU	behind sun end	4312 Mar 07 23:38	17° 15 03'11	
direct	4305 Nov 12 08:32	1° 15 21'00		max. Earth dist.	4312 Mar 08 03:44	17° 15 03'34	31.08420 AU
				retrograde	4312 Jun 20 20:07	19° 15 34'16	
conjunction	4306 Feb 23 09:50	3° 15 49'27	0°05'33	opposition	4312 Sep 09 04:05	18° 15 10'33	0°-18'-1
minimum elong	4306 Feb 23 09:49	3° 15 49'27	0°05'32	min. Earth dist.	4312 Sep 08 21:41	18° 15 10'59	29.07831 AU
behind sun begin	4306 Feb 23 03:40	3° 15 48'53		direct	4312 Nov 27 14:46	16° 15 47'18	
behind sun end	4306 Feb 23 15:59	3° 15 50'00					
max. Earth dist.	4306 Feb 23 12:47	3° 15 49'41	31.13614 AU	conjunction	4313 Mar 10 07:26	19° 15 15'40	0°-18'-34
retrograde	4306 Jun 07 16:04	6° 15 19'38		minimum elong	4313 Mar 10 07:26	19° 15 15'40	0°18'35
opposition	4306 Aug 26 21:21	4° 15 56'13	0°04'00	max. Earth dist.	4313 Mar 10 14:30	19° 15 16'19	31.07220 AU
min. Earth dist.	4306 Aug 26 17:45	4° 15 56'28	29.13244 AU	retrograde	4313 Jun 23 09:35	21° 15 47'04	
direct	4306 Nov 14 20:35	3° 15 32'44		opposition	4313 Sep 11 17:05	20° 15 23'15	0°-21'-38
				min. Earth dist.	4313 Sep 11 08:58	20° 15 23'48	29.06603 AU
conjunction	4307 Feb 25 19:19	6° 15 01'10	0°02'06	direct	4313 Nov 30 03:40	18° 15 59'59	
minimum elong	4307 Feb 25 19:19	6° 15 01'10	0°02'06				
behind sun begin	4307 Feb 25 12:55	6° 15 00'35		conjunction	4314 Mar 12 17:31	21° 15 28'18	0°-21'-56
behind sun end	4307 Feb 26 01:43	6° 15 01'44		minimum elong	4314 Mar 12 17:31	21° 15 28'18	0°21'57
max. Earth dist.	4307 Feb 25 22:18	6° 15 01'23	31.12887 AU	max. Earth dist.	4314 Mar 13 01:02	21° 15 29'00	31.05984 AU
retrograde	4307 Jun 10 04:47	8° 15 31'33		retrograde	4314 Jun 25 20:38	23° 15 59'51	
opposition	4307 Aug 29 10:26	7° 15 08'06	0°00'19	opposition	4314 Sep 14 06:21	22° 15 35'55	0°-25'-13
min. Earth dist.	4307 Aug 29 06:30	7° 15 08'22	29.12531 AU	min. Earth dist.	4314 Sep 13 22:23	22° 15 36'28	29.05393 AU
desc. node	4307 Sep 30 15:04	6° 15 18'59		direct	4314 Dec 02 14:50	21° 15 12'39	
direct	4307 Nov 17 05:42	5° 15 44'41					
				conjunction	4315 Mar 15 03:39	23° 15 40'55	0°-25'-16
conjunction	4308 Feb 28 05:15	8° 15 13'07	0°-1'-27	minimum elong	4315 Mar 15 03:39	23° 15 40'55	0°25'16
minimum elong	4308 Feb 28 05:14	8° 15 13'07	0°01'28	max. Earth dist.	4315 Mar 15 12:53	23° 15 41'47	31.04804 AU
behind sun begin	4308 Feb 27 22:50	8° 15 12'32		retrograde	4315 Jun 28 08:03	26° 15 12'35	
behind sun end	4308 Feb 28 11:38	8° 15 13'41		opposition	4315 Sep 16 19:24	24° 15 48'34	0°-28'-46
max. Earth dist.	4308 Feb 28 09:58	8° 15 13'31	31.12163 AU	min. Earth dist.	4315 Sep 16 09:42	24° 15 49'14	29.04251 AU
retrograde	4308 Jun 11 15:53	10° 15 43'42		direct	4315 Dec 05 04:04	23° 15 25'18	
opposition	4308 Aug 30 23:19	9° 15 20'14	0°-3'-21				
min. Earth dist.	4308 Aug 30 18:34	9° 15 20'33	29.11783 AU	conjunction	4316 Mar 16 13:48	25° 15 53'32	0°-28'-34
direct	4308 Nov 18 17:45	7° 15 56'53		minimum elong	4316 Mar 16 13:48	25° 15 53'32	0°28'35
				max. Earth dist.	4316 Mar 16 22:59	25° 15 54'24	31.03707 AU
conjunction	4309 Mar 01 15:04	10° 15 25'19	0°-4'-55	retrograde	4316 Jun 29 20:52	28° 15 25'21	
minimum elong	4309 Mar 01 15:04	10° 15 25'19	0°04'55	opposition	4316 Sep 18 08:21	27° 15 01'16	0°-32'-17
behind sun begin	4309 Mar 01 08:50	10° 15 24'45		min. Earth dist.	4316 Sep 17 22:18	27° 15 01'57	29.03221 AU
behind sun end	4309 Mar 01 21:18	10° 15 25'53		direct	4316 Dec 06 14:08	25° 15 37'59	
max. Earth dist.	4309 Mar 01 19:22	10° 15 25'41	31.11390 AU				
retrograde	4309 Jun 14 05:51	12° 15 56'05		conjunction	4317 Mar 19 00:09	28° 15 06'13	0°-31'-49
opposition	4309 Sep 02 12:25	11° 15 32'35	0°-7'-2	minimum elong	4317 Mar 19 00:09	28° 15 06'13	0°31'49
min. Earth dist.	4309 Sep 02 06:54	11° 15 32'58	29.10975 AU	max. Earth dist.	4317 Mar 19 11:16	28° 15 07'16	31.02724 AU
direct	4309 Nov 21 03:24	10° 15 09'17			4317 May 14 11:40	0° 15	
				retrograde	4317 Jul 02 07:21	0° 15 38'12	
conjunction	4310 Mar 04 01:04	12° 15 37'44	0°-8'-21		4317 Aug 22 05:07	30° 15	
minimum elong	4310 Mar 04 01:04	12° 15 37'44	0°08'22	opposition	4317 Sep 20 21:25	29° 15 14'02	0°-35'-45
behind sun begin	4310 Mar 03 19:24	12° 15 37'13		min. Earth dist.	4317 Sep 20 10:11	29° 15 14'49	29.02287 AU
behind sun end	4310 Mar 04 06:44	12° 15 38'15		direct	4317 Dec 09 02:28	27° 15 50'48	
max. Earth dist.	4310 Mar 04 06:54	12° 15 38'16	31.10520 AU		4318 Mar 13 01:40	0° 15	
retrograde	4310 Jun 16 17:27	15° 15 08'42					
opposition	4310 Sep 05 01:42	13° 15 45'09	0°-10'-43	conjunction	4318 Mar 21 10:17	0° 15 19'00	0°-35'-2
min. Earth dist.	4310 Sep 04 20:13	13° 15 45'31	29.10045 AU	minimum elong	4318 Mar 21 10:17	0° 15 19'00	0°35'03
direct	4310 Nov 23 14:33	12° 15 21'53		max. Earth dist.	4318 Mar 21 21:20	0° 15 20'03	31.01846 AU
				retrograde	4318 Jul 04 20:29	2° 15 51'09	
conjunction	4311 Mar 06 11:09	14° 15 50'19	0°-11'-46	opposition	4318 Sep 23 10:35	1° 15 26'57	0°-39'-9
minimum elong	4311 Mar 06 11:09	14° 15 50'19	0°11'46	min. Earth dist.	4318 Sep 22 22:18	1° 15 27'47	29.01459 AU
behind sun begin	4311 Mar 06 06:36	14° 15 49'54		direct	4318 Dec 11 11:56	0° 15 03'44	

conjunction	4319 Mar 23 20:48	2°Υ31'57	0°-38'-12	retrograde	4327 Jul 25 17:08	22°Υ53'52	
minimum elong	4319 Mar 23 20:48	2°Υ31'57	0°38'13	opposition	4327 Oct 14 08:44	21°Υ29'06	-1°-6'-46
max. Earth dist.	4319 Mar 24 09:36	2°Υ33'10	31.01044 AU	min. Earth dist.	4327 Oct 13 16:25	21°Υ30'13	28.92683 AU
retrograde	4319 Jul 07 08:07	5°Υ04'16		direct	4327 Dec 31 20:35	20°Υ05'54	
opposition	4319 Sep 25 23:40	3°Υ40'02	0°-42'-31				
min. Earth dist.	4319 Sep 25 11:13	3°Υ40'53	29.00685 AU	conjunction	4328 Apr 11 23:27	22°Υ34'09	-1°-3'-41
direct	4319 Dec 13 22:32	2°Υ16'51		minimum elong	4328 Apr 11 23:26	22°Υ34'09	1°03'42
				max. Earth dist.	4328 Apr 12 16:39	22°Υ35'46	30.92087 AU
conjunction	4320 Mar 25 07:19	4°Υ45'04	0°-41'-19	retrograde	4328 Jul 27 04:39	25°Υ07'40	
minimum elong	4320 Mar 25 07:19	4°Υ45'04	0°41'21	opposition	4328 Oct 15 21:42	23°Υ42'49	-1°-9'-24
max. Earth dist.	4320 Mar 25 20:12	4°Υ46'18	31.00292 AU	min. Earth dist.	4328 Oct 15 05:12	23°Υ43'58	28.91626 AU
retrograde	4320 Jul 08 22:30	7°Υ17'34		direct	4329 Jan 02 07:36	22°Υ19'37	
opposition	4320 Sep 27 12:45	5°Υ53'17	0°-45'-49				
min. Earth dist.	4320 Sep 26 22:58	5°Υ54'14	28.99936 AU	conjunction	4329 Apr 14 10:33	24°Υ47'52	-1°-6'-5
direct	4320 Dec 15 09:35	4°Υ30'09		minimum elong	4329 Apr 14 10:33	24°Υ47'52	1°06'06
				max. Earth dist.	4329 Apr 15 03:55	24°Υ49'31	30.91093 AU
conjunction	4321 Mar 27 17:58	6°Υ58'24	0°-44'-22	retrograde	4329 Jul 29 18:25	27°Υ21'32	
minimum elong	4321 Mar 27 17:58	6°Υ58'24	0°44'23	opposition	4329 Oct 18 10:36	25°Υ56'37	-1°-11'-56
max. Earth dist.	4321 Mar 28 07:41	6°Υ59'41	30.99517 AU	min. Earth dist.	4329 Oct 17 16:40	25°Υ57'52	28.90701 AU
retrograde	4321 Jul 11 11:36	9°Υ31'03		direct	4330 Jan 04 18:39	24°Υ33'25	
opposition	4321 Sep 30 02:00	8°Υ06'44	0°-49'-3				
min. Earth dist.	4321 Sep 29 12:40	8°Υ07'39	28.99148 AU	conjunction	4330 Apr 16 21:53	27°Υ01'42	-1°-8'-24
direct	4321 Dec 17 21:12	6°Υ43'38		minimum elong	4330 Apr 16 21:53	27°Υ01'42	1°08'26
				max. Earth dist.	4330 Apr 17 16:12	27°Υ03'26	30.90222 AU
conjunction	4322 Mar 30 04:51	9°Υ11'54	0°-47'-22	retrograde	4330 Aug 01 07:12	29°Υ35'30	
minimum elong	4322 Mar 30 04:51	9°Υ11'54	0°47'23	opposition	4330 Oct 20 23:35	28°Υ10'33	-1°-14'-21
max. Earth dist.	4322 Mar 30 19:05	9°Υ13'15	30.98703 AU	min. Earth dist.	4330 Oct 20 05:54	28°Υ11'46	28.89902 AU
retrograde	4322 Jul 14 01:51	11°Υ44'43		direct	4331 Jan 07 05:35	26°Υ47'21	
opposition	4322 Oct 02 15:10	10°Υ20'21	0°-52'-13				
min. Earth dist.	4322 Oct 02 00:25	10°Υ21'22	28.98289 AU	conjunction	4331 Apr 19 09:17	29°Υ15'40	-1°-10'-37
direct	4322 Dec 20 09:25	8°Υ57'16		minimum elong	4331 Apr 19 09:17	29°Υ15'40	1°10'38
				max. Earth dist.	4331 Apr 20 04:21	29°Υ17'29	30.89488 AU
conjunction	4323 Apr 01 15:46	11°Υ25'33	0°-50'-17		4331 May 09 02:41	0°8	
minimum elong	4323 Apr 01 15:46	11°Υ25'33	0°50'17	retrograde	4331 Aug 03 21:26	1°849'36	
max. Earth dist.	4323 Apr 02 05:52	11°Υ26'53	30.97779 AU	opposition	4331 Oct 23 12:25	0°824'38	-1°-16'-39
retrograde	4323 Jul 16 14:49	13°Υ58'31		min. Earth dist.	4331 Oct 22 17:07	0°825'58	28.89217 AU
opposition	4323 Oct 05 04:31	12°Υ34'05	0°-55'-18		4331 Nov 07 14:16	30°8Υ	
min. Earth dist.	4323 Oct 04 14:30	12°Υ35'03	28.97313 AU	direct	4332 Jan 09 16:58	29°Υ01'26	
direct	4323 Dec 22 20:51	11°Υ11'00			4332 Mar 09 14:04	0°8	
conjunction	4324 Apr 03 02:58	13°Υ39'17	0°-53'-8	conjunction	4332 Apr 20 20:48	1°829'50	-1°-12'-43
minimum elong	4324 Apr 03 02:58	13°Υ39'17	0°53'09	minimum elong	4332 Apr 20 20:48	1°829'50	1°12'44
max. Earth dist.	4324 Apr 03 18:05	13°Υ40'43	30.96739 AU	max. Earth dist.	4332 Apr 21 15:56	1°831'38	30.88839 AU
retrograde	4324 Jul 18 03:54	16°Υ12'22		retrograde	4332 Aug 05 11:08	4°803'53	
opposition	4324 Oct 06 17:29	14°Υ47'52	0°-58'-18	min. Earth dist.	4332 Oct 24 06:37	2°840'11	28.88614 AU
min. Earth dist.	4324 Oct 06 02:26	14°Υ48'54	28.96208 AU	opposition	4332 Oct 25 01:16	2°838'54	-1°-18'-51
direct	4324 Dec 24 10:32	13°Υ24'46		direct	4333 Jan 11 04:12	1°815'45	
conjunction	4325 Apr 05 14:01	15°Υ53'03	0°-55'-54	conjunction	4333 Apr 23 08:32	3°844'11	-1°-14'-43
minimum elong	4325 Apr 05 14:01	15°Υ53'03	0°55'54	minimum elong	4333 Apr 23 08:32	3°844'11	1°14'44
max. Earth dist.	4325 Apr 06 04:28	15°Υ54'25	30.95586 AU	max. Earth dist.	4333 Apr 24 04:56	3°846'07	30.88263 AU
retrograde	4325 Jul 20 17:17	18°Υ26'15		retrograde	4333 Aug 08 02:00	6°818'22	
opposition	4325 Oct 09 06:43	17°Υ01'39	-1°-1'-13	opposition	4333 Oct 27 14:06	4°853'22	-1°-20'-55
min. Earth dist.	4325 Oct 08 15:54	17°Υ02'40	28.95029 AU	min. Earth dist.	4333 Oct 26 18:19	4°854'45	28.88049 AU
direct	4325 Dec 26 21:33	15°Υ38'31		direct	4334 Jan 13 17:49	3°830'15	
conjunction	4326 Apr 08 01:05	18°Υ06'46	0°-58'-35	conjunction	4334 Apr 25 20:11	5°858'45	-1°-16'-36
minimum elong	4326 Apr 08 01:05	18°Υ06'46	0°58'36	minimum elong	4334 Apr 25 20:11	5°858'45	1°16'37
max. Earth dist.	4326 Apr 08 17:08	18°Υ08'17	30.94383 AU	max. Earth dist.	4334 Apr 26 15:55	6°800'37	30.87696 AU
retrograde	4326 Jul 23 04:06	20°Υ40'04		retrograde	4334 Aug 10 15:56	8°833'03	
opposition	4326 Oct 11 19:49	19°Υ15'23	-1°-4'-2	min. Earth dist.	4334 Oct 29 07:51	7°809'22	28.87478 AU
min. Earth dist.	4326 Oct 11 04:09	19°Υ16'28	28.93824 AU	opposition	4334 Oct 30 03:07	7°808'03	-1°-22'-52
direct	4326 Dec 29 10:30	17°Υ52'13		direct	4335 Jan 16 04:51	5°844'56	
conjunction	4327 Apr 10 12:10	20°Υ20'27	-1°-1'-10	conjunction	4335 Apr 28 08:20	8°813'28	-1°-18'-22
minimum elong	4327 Apr 10 12:10	20°Υ20'27	1°01'11	minimum elong	4335 Apr 28 08:19	8°813'28	1°18'23
max. Earth dist.	4327 Apr 11 03:49	20°Υ21'56	30.93199 AU	max. Earth dist.	4335 Apr 29 05:10	8°815'27	30.87089 AU

retrograde	4335 Aug 13 04:10	10°847'52		minimum elong	4343 May 16 10:23	26°810'42	1°28'06
opposition	4335 Nov 01 15:52	9°822'51	-1°-24'-42	max. Earth dist.	4343 May 17 07:53	26°812'44	30.81607 AU
min. Earth dist.	4335 Oct 31 20:17	9°824'12	28.86832 AU	retrograde	4343 Aug 31 13:22	28°845'27	
direct	4336 Jan 18 17:49	7°859'44		opposition	4343 Nov 19 20:40	27°820'02	-1°-34'-33
				min. Earth dist.	4343 Nov 19 00:04	27°821'28	28.81571 AU
conjunction	4336 Apr 29 20:26	10°828'18	-1°-20'-1	direct	4344 Feb 05 14:14	25°856'36	
minimum elong	4336 Apr 29 20:26	10°828'18	1°20'02				
max. Earth dist.	4336 Apr 30 16:09	10°830'10	30.86399 AU	conjunction	4344 May 17 23:05	28°825'23	-1°-28'-43
retrograde	4336 Aug 14 18:25	13°802'46		minimum elong	4344 May 17 23:05	28°825'23	1°28'44
min. Earth dist.	4336 Nov 02 09:10	11°839'04	28.86099 AU	max. Earth dist.	4344 May 18 21:52	28°827'32	30.81372 AU
opposition	4336 Nov 03 04:47	11°837'42	-1°-26'-24		4344 Jul 01 18:13	0°II	
direct	4337 Jan 20 05:05	10°814'33		retrograde	4344 Sep 02 02:42	1°II00'10	
					4344 Nov 06 02:20	30°R8	
conjunction	4337 May 02 08:35	12°843'09	-1°-21'-33	min. Earth dist.	4344 Nov 20 11:51	29°836'15	28.81390 AU
minimum elong	4337 May 02 08:34	12°843'09	1°21'34	opposition	4344 Nov 21 09:01	29°834'47	-1°-35'-9
max. Earth dist.	4337 May 03 05:15	12°845'06	30.85611 AU	direct	4345 Feb 07 03:11	28°811'22	
	4337 Jul 15 05:48	15°8			4345 May 02 13:29	0°II	
retrograde	4337 Aug 17 06:05	15°817'40					
	4337 Sep 19 21:02	15°R8		conjunction	4345 May 20 11:34	0°II40'14	-1°-29'-12
opposition	4337 Nov 05 17:40	13°852'32	-1°-27'-59	minimum elong	4345 May 20 11:34	0°II40'14	1°29'14
min. Earth dist.	4337 Nov 04 22:24	13°853'52	28.85274 AU	max. Earth dist.	4345 May 21 09:29	0°II42'18	30.81248 AU
direct	4338 Jan 22 17:17	12°829'20		retrograde	4345 Sep 04 17:57	3°II15'05	
				opposition	4345 Nov 23 21:28	1°II49'44	-1°-35'-36
conjunction	4338 May 04 20:46	14°857'55	-1°-22'-57	min. Earth dist.	4345 Nov 23 00:15	1°II51'12	28.81309 AU
minimum elong	4338 May 04 20:46	14°857'55	1°22'59	direct	4346 Feb 09 14:26	0°II26'20	
	4338 May 05 18:46	15°8					
max. Earth dist.	4338 May 05 16:58	14°859'50	30.84777 AU	conjunction	4346 May 23 00:31	2°II55'18	-1°-29'-33
retrograde	4338 Aug 19 18:59	17°832'28		minimum elong	4346 May 23 00:31	2°II55'18	1°29'35
min. Earth dist.	4338 Nov 07 10:20	16°808'39	28.84437 AU	max. Earth dist.	4346 May 23 23:25	2°II57'28	30.81184 AU
opposition	4338 Nov 08 06:19	16°807'16	-1°-29'-25	retrograde	4346 Sep 07 06:13	5°II30'12	
	4338 Dec 25 01:59	15°R8		opposition	4346 Nov 26 09:48	4°II04'54	-1°-35'-54
direct	4339 Jan 25 04:39	14°844'00		min. Earth dist.	4346 Nov 25 13:08	4°II06'20	28.81254 AU
	4339 Feb 24 15:33	15°8		direct	4347 Feb 12 02:22	2°II41'32	
conjunction	4339 May 07 08:59	17°812'35	-1°-24'-14	conjunction	4347 May 25 13:33	5°II10'34	-1°-29'-46
minimum elong	4339 May 07 08:59	17°812'35	1°24'16	minimum elong	4347 May 25 13:33	5°II10'34	1°29'48
max. Earth dist.	4339 May 08 05:42	17°814'32	30.83936 AU	max. Earth dist.	4347 May 26 11:32	5°II12'39	30.81129 AU
retrograde	4339 Aug 22 06:36	19°847'10		retrograde	4347 Sep 09 20:04	7°II45'32	
opposition	4339 Nov 10 18:59	18°821'53	-1°-30'-43	opposition	4347 Nov 28 22:08	6°II20'16	-1°-36'-4
min. Earth dist.	4339 Nov 09 23:43	18°823'13	28.83625 AU	min. Earth dist.	4347 Nov 28 01:14	6°II21'44	28.81175 AU
direct	4340 Jan 27 15:33	16°858'34		direct	4348 Feb 14 13:34	4°II56'54	
conjunction	4340 May 08 21:18	19°827'09	-1°-25'-24	conjunction	4348 May 27 02:44	7°II26'02	-1°-29'-51
minimum elong	4340 May 08 21:18	19°827'09	1°25'25	minimum elong	4348 May 27 02:44	7°II26'02	1°29'52
max. Earth dist.	4340 May 09 18:20	19°829'09	30.83166 AU	max. Earth dist.	4348 May 28 00:41	7°II28'06	30.80999 AU
retrograde	4340 Aug 23 20:16	22°801'46		retrograde	4348 Sep 11 08:13	10°II01'01	
min. Earth dist.	4340 Nov 11 10:46	20°837'51	28.82904 AU	opposition	4348 Nov 30 10:31	8°II35'46	-1°-36'-4
opposition	4340 Nov 12 07:21	20°836'25	-1°-31'-53	min. Earth dist.	4348 Nov 29 14:51	8°II37'09	28.81004 AU
direct	4341 Jan 29 03:02	19°813'02		direct	4349 Feb 16 00:08	7°II12'24	
conjunction	4341 May 11 09:33	21°841'39	-1°-26'-25	conjunction	4349 May 29 16:01	9°II41'35	-1°-29'-48
minimum elong	4341 May 11 09:33	21°841'39	1°26'26	minimum elong	4349 May 29 16:01	9°II41'35	1°29'49
max. Earth dist.	4341 May 12 06:32	21°843'38	30.82498 AU	max. Earth dist.	4349 May 30 13:28	9°II43'36	30.80794 AU
retrograde	4341 Aug 26 09:20	24°816'18		retrograde	4349 Sep 13 22:09	12°II16'34	
opposition	4341 Nov 14 19:56	22°850'55	-1°-32'-55	opposition	4349 Dec 02 22:46	10°II51'19	-1°-35'-56
min. Earth dist.	4341 Nov 14 00:00	22°852'18	28.82315 AU	min. Earth dist.	4349 Dec 02 02:28	10°II52'44	28.80751 AU
direct	4342 Jan 31 14:22	21°827'30		direct	4350 Feb 18 11:30	9°II27'54	
conjunction	4342 May 13 21:56	23°856'09	-1°-27'-19	conjunction	4350 Jun 01 05:13	11°II57'07	-1°-29'-36
minimum elong	4342 May 13 21:56	23°856'09	1°27'20	minimum elong	4350 Jun 01 05:13	11°II57'07	1°29'37
max. Earth dist.	4342 May 14 20:07	23°858'15	30.81982 AU	max. Earth dist.	4350 Jun 02 01:55	11°II59'05	30.80501 AU
retrograde	4342 Aug 28 23:31	26°830'50		retrograde	4350 Sep 16 10:23	14°II32'06	
min. Earth dist.	4342 Nov 16 11:14	25°806'54	28.81867 AU	opposition	4350 Dec 05 11:05	13°II06'49	-1°-35'-39
opposition	4342 Nov 17 08:19	25°805'25	-1°-33'-48	min. Earth dist.	4350 Dec 04 16:10	13°II08'09	28.80432 AU
direct	4343 Feb 03 03:34	23°842'00		direct	4351 Feb 20 23:12	11°II43'21	
conjunction	4343 May 16 10:23	26°810'42	-1°-28'-5	conjunction	4351 Jun 03 18:39	14°II12'37	-1°-29'-16

minimum elong	4351 Jun 03 18:39	14°II12'37	1°29'17	conjunction	4359 Jun 22 06:25	2°☾14'20	-1°-21'-48
max. Earth dist.	4351 Jun 04 15:45	14°II14'36	30.80176 AU	minimum elong	4359 Jun 22 06:25	2°☾14'20	1°21'49
retrograde	4351 Sep 18 23:46	16°II47'32		max. Earth dist.	4359 Jun 23 01:13	2°☾16'06	30.80642 AU
opposition	4351 Dec 07 22:58	15°II22'14	-1°-35'-14	retrograde	4359 Oct 07 09:32	4°☾48'53	
min. Earth dist.	4351 Dec 07 03:32	15°II23'36	28.80099 AU	opposition	4359 Dec 25 21:21	3°☾23'44	-1°-26'-39
direct	4352 Feb 23 12:12	13°II58'41		min. Earth dist.	4359 Dec 25 04:48	3°☾24'54	28.80908 AU
				direct	4360 Mar 12 10:25	1°☾59'57	
conjunction	4352 Jun 05 07:54	16°II27'59	-1°-28'-48				
minimum elong	4352 Jun 05 07:54	16°II27'59	1°28'49	conjunction	4360 Jun 23 20:25	4°☾29'45	-1°-20'-16
max. Earth dist.	4352 Jun 06 03:54	16°II29'52	30.79859 AU	minimum elong	4360 Jun 23 20:26	4°☾29'45	1°20'17
retrograde	4352 Sep 20 13:16	19°II02'52		max. Earth dist.	4360 Jun 24 15:07	4°☾31'31	30.81006 AU
opposition	4352 Dec 09 11:04	17°II37'32	-1°-34'-39	retrograde	4360 Oct 08 22:51	7°☾04'14	
min. Earth dist.	4352 Dec 08 16:32	17°II38'50	28.79820 AU	opposition	4360 Dec 27 08:59	5°☾39'09	-1°-24'-57
direct	4353 Feb 24 22:56	16°II13'55		min. Earth dist.	4360 Dec 26 16:15	5°☾40'20	28.81226 AU
				direct	4361 Mar 14 22:37	4°☾15'20	
conjunction	4353 Jun 07 21:10	18°II43'15	-1°-28'-12				
minimum elong	4353 Jun 07 21:10	18°II43'15	1°28'14	conjunction	4361 Jun 26 10:14	6°☾45'13	-1°-18'-37
max. Earth dist.	4353 Jun 08 18:10	18°II45'14	30.79618 AU	minimum elong	4361 Jun 26 10:14	6°☾45'13	1°18'39
retrograde	4353 Sep 23 02:45	21°II18'05		max. Earth dist.	4361 Jun 27 03:18	6°☾46'49	30.81280 AU
opposition	4353 Dec 11 22:59	19°II52'44	-1°-33'-56	retrograde	4361 Oct 11 12:00	9°☾19'38	
min. Earth dist.	4353 Dec 11 04:06	19°II54'03	28.79622 AU	opposition	4361 Dec 29 20:46	7°☾54'35	-1°-23'-8
direct	4354 Feb 27 12:46	18°II29'04		min. Earth dist.	4361 Dec 29 05:31	7°☾55'39	28.81456 AU
				direct	4362 Mar 17 09:14	6°☾30'43	
conjunction	4354 Jun 10 10:29	20°II58'26	-1°-27'-28				
minimum elong	4354 Jun 10 10:29	20°II58'26	1°27'29	conjunction	4362 Jun 29 00:25	9°☾00'39	-1°-16'-51
max. Earth dist.	4354 Jun 11 06:15	21°II00'18	30.79486 AU	minimum elong	4362 Jun 29 00:25	9°☾00'39	1°16'53
retrograde	4354 Sep 25 17:48	23°II33'12		max. Earth dist.	4362 Jun 29 17:40	9°☾02'16	30.81465 AU
opposition	4354 Dec 14 10:47	22°II07'51	-1°-33'-5	retrograde	4362 Oct 14 00:57	11°☾34'58	
min. Earth dist.	4354 Dec 13 16:04	22°II09'09	28.79560 AU	opposition	4363 Jan 01 08:12	10°☾09'56	-1°-21'-11
direct	4355 Mar 02 00:59	20°II44'07		min. Earth dist.	4362 Dec 31 17:16	10°☾10'59	28.81589 AU
				direct	4363 Mar 19 23:00	8°☾46'00	
conjunction	4355 Jun 13 00:01	23°II13'33	-1°-26'-36				
minimum elong	4355 Jun 13 00:01	23°II13'33	1°26'38	conjunction	4363 Jul 01 14:24	11°☾15'59	-1°-14'-59
max. Earth dist.	4355 Jun 13 20:41	23°II15'30	30.79483 AU	minimum elong	4363 Jul 01 14:25	11°☾15'59	1°15'01
retrograde	4355 Sep 28 05:31	25°II48'16		max. Earth dist.	4363 Jul 02 05:41	11°☾17'25	30.81578 AU
opposition	4355 Dec 16 22:35	24°II22'55	-1°-32'-5	retrograde	4363 Oct 16 15:15	13°☾50'12	
min. Earth dist.	4355 Dec 16 04:16	24°II24'13	28.79622 AU	opposition	4364 Jan 03 19:41	12°☾25'10	-1°-19'-7
direct	4356 Mar 03 13:24	22°II59'10		min. Earth dist.	4364 Jan 03 05:30	12°☾26'10	28.81685 AU
				direct	4364 Mar 21 11:16	11°☾01'10	
conjunction	4356 Jun 14 13:22	25°II28'39	-1°-25'-36				
minimum elong	4356 Jun 14 13:22	25°II28'39	1°25'37	conjunction	4364 Jul 03 04:22	13°☾31'12	-1°-12'-59
max. Earth dist.	4356 Jun 15 09:10	25°II30'31	30.79624 AU	minimum elong	4364 Jul 03 04:22	13°☾31'12	1°13'00
retrograde	4356 Sep 29 19:50	28°II03'19		max. Earth dist.	4364 Jul 03 20:05	13°☾32'40	30.81664 AU
opposition	4356 Dec 18 10:17	26°II38'00	-1°-30'-56	retrograde	4364 Oct 18 03:00	16°☾05'17	
min. Earth dist.	4356 Dec 17 15:32	26°II39'20	28.79828 AU	opposition	4365 Jan 05 07:02	14°☾40'16	-1°-16'-56
direct	4357 Mar 06 01:08	25°II14'14		min. Earth dist.	4365 Jan 04 17:39	14°☾41'12	28.81773 AU
				direct	4365 Mar 24 00:01	13°☾16'12	
conjunction	4357 Jun 17 02:57	27°II43'47	-1°-24'-28				
minimum elong	4357 Jun 17 02:57	27°II43'48	1°24'29	conjunction	4365 Jul 05 18:14	15°☾46'16	-1°-10'-53
max. Earth dist.	4357 Jun 17 23:04	27°II45'41	30.79887 AU	minimum elong	4365 Jul 05 18:14	15°☾46'16	1°10'55
	4357 Aug 29 17:14	0°☾		max. Earth dist.	4365 Jul 06 08:35	15°☾47'36	30.81791 AU
retrograde	4357 Oct 02 08:20	0°☾18'25		retrograde	4365 Oct 20 17:34	18°☾20'14	
	4357 Nov 05 08:23	30°RII		opposition	4366 Jan 07 18:12	16°☾55'13	-1°-14'-38
opposition	4357 Dec 20 22:04	28°II53'09	-1°-29'-39	min. Earth dist.	4366 Jan 07 04:47	16°☾56'10	28.81934 AU
min. Earth dist.	4357 Dec 20 04:25	28°II54'24	28.80143 AU	direct	4366 Mar 26 12:26	15°☾31'05	
direct	4358 Mar 08 12:05	27°II29'23					
				conjunction	4366 Jul 08 08:12	18°☾01'12	-1°-8'-41
conjunction	4358 Jun 19 16:35	29°II59'00	-1°-23'-11	minimum elong	4366 Jul 08 08:12	18°☾01'12	1°08'42
minimum elong	4358 Jun 19 16:35	29°II59'00	1°23'13	max. Earth dist.	4366 Jul 08 22:43	18°☾02'34	30.81989 AU
	4358 Jun 20 03:09	0°☾		retrograde	4366 Oct 23 05:44	20°☾35'03	
max. Earth dist.	4358 Jun 20 12:13	0°☾00'51	30.80257 AU	opposition	4367 Jan 10 05:27	19°☾10'03	-1°-12'-13
retrograde	4358 Oct 04 21:52	2°☾33'35		min. Earth dist.	4367 Jan 09 17:15	19°☾10'55	28.82184 AU
opposition	4358 Dec 23 09:41	1°☾08'24	-1°-28'-13	direct	4367 Mar 29 00:12	17°☾45'52	
min. Earth dist.	4358 Dec 22 15:30	1°☾09'41	28.80528 AU				
	4359 Feb 08 15:17	30°RII		conjunction	4367 Jul 10 22:07	20°☾16'02	-1°-6'-23
direct	4359 Mar 10 23:45	29°II44'37		minimum elong	4367 Jul 10 22:08	20°☾16'02	1°06'24
	4359 Apr 09 21:17	0°☾		max. Earth dist.	4367 Jul 11 11:52	20°☾17'19	30.82311 AU

retrograde	4367 Oct 25 18:29	22° 5 49'46		retrograde	4375 Nov 12 21:28	10° 0 47'43	
opposition	4368 Jan 12 16:24	21° 5 24'49	-1°-9'-42	opposition	4376 Jan 30 08:06	9° 0 23'16	0°-46'-3
min. Earth dist.	4368 Jan 12 03:35	21° 5 25'43	28.82569 AU	min. Earth dist.	4376 Jan 30 01:55	9° 0 23'42	28.88293 AU
direct	4368 Mar 30 12:18	20° 5 00'35		direct	4376 Apr 17 10:20	7° 0 58'49	
conjunction	4368 Jul 12 11:59	22° 5 30'48	-1°-3'-59	conjunction	4376 Jul 31 04:42	10° 0 29'33	0°-41'-33
minimum elong	4368 Jul 12 12:00	22° 5 30'48	1°04'00	minimum elong	4376 Jul 31 04:42	10° 0 29'33	0°41'34
max. Earth dist.	4368 Jul 13 01:12	22° 5 32'02	30.82767 AU	max. Earth dist.	4376 Jul 31 11:25	10° 0 30'10	30.88566 AU
retrograde	4368 Oct 27 05:30	25° 5 04'26		retrograde	4376 Nov 14 10:34	13° 0 02'09	
opposition	4369 Jan 14 03:34	23° 5 39'32	-1°-7'-4	opposition	4377 Jan 31 18:47	11° 0 37'44	0°-42'-45
min. Earth dist.	4369 Jan 13 16:01	23° 5 40'21	28.83106 AU	min. Earth dist.	4377 Jan 31 12:23	11° 0 38'11	28.88867 AU
direct	4369 Apr 01 22:41	22° 5 15'16		direct	4377 Apr 19 23:14	10° 0 13'13	
conjunction	4369 Jul 15 01:50	24° 5 45'34	-1°-1'-28	conjunction	4377 Aug 02 18:40	12° 0 43'57	0°-38'-26
minimum elong	4369 Jul 15 01:50	24° 5 45'34	1°01'30	minimum elong	4377 Aug 02 18:40	12° 0 43'57	0°38'28
max. Earth dist.	4369 Jul 15 15:10	24° 5 46'49	30.83390 AU	max. Earth dist.	4377 Aug 03 00:33	12° 0 44'30	30.89138 AU
retrograde	4369 Oct 29 18:26	27° 5 19'05			4377 Oct 16 11:43	15° 0	
opposition	4370 Jan 16 14:33	25° 5 54'15	-1°-4'-20	retrograde	4377 Nov 16 21:53	15° 0 16'23	
min. Earth dist.	4370 Jan 16 02:31	25° 5 55'07	28.83786 AU		4377 Dec 18 13:52	15° 0 16'23	
direct	4370 Apr 04 09:59	24° 5 29'59		opposition	4378 Feb 03 05:33	13° 0 51'58	0°-39'-23
conjunction	4370 Jul 17 15:47	27° 5 00'22	0°-58'-52	min. Earth dist.	4378 Feb 03 00:50	13° 0 52'18	28.89453 AU
minimum elong	4370 Jul 17 15:48	27° 5 00'22	0°58'53	direct	4378 Apr 22 10:21	12° 0 27'24	
max. Earth dist.	4370 Jul 18 03:51	27° 5 01'29	30.84136 AU	conjunction	4378 Aug 05 08:45	14° 0 58'09	0°-35'-15
retrograde	4370 Nov 01 06:08	29° 5 33'48		minimum elong	4378 Aug 05 08:45	14° 0 58'09	0°35'16
opposition	4371 Jan 19 01:30	28° 5 09'03	-1°-1'-30	max. Earth dist.	4378 Aug 05 14:11	14° 0 58'39	30.89754 AU
min. Earth dist.	4371 Jan 18 14:48	28° 5 09'48	28.84585 AU		4378 Aug 06 04:43	15° 0	
direct	4371 Apr 06 19:49	26° 5 44'46		retrograde	4378 Nov 19 10:11	17° 0 30'23	
conjunction	4371 Jul 20 05:58	29° 5 15'14	0°-56'-11	opposition	4379 Feb 05 15:59	16° 0 06'01	0°-35'-58
minimum elong	4371 Jul 20 05:58	29° 5 15'14	0°56'13	min. Earth dist.	4379 Feb 05 11:03	16° 0 06'22	28.90092 AU
max. Earth dist.	4371 Jul 20 18:21	29° 5 16'23	30.84972 AU	direct	4379 Mar 22 04:16	15° 0 16'23	
	4371 Aug 09 11:08	0° 0			4379 Apr 24 22:33	14° 0 41'22	
retrograde	4371 Nov 03 18:02	1° 0 48'34			4379 May 28 06:58	15° 0	
opposition	4372 Jan 21 12:26	0° 0 23'55	0°-58'-35	conjunction	4379 Aug 07 22:38	17° 0 12'08	0°-32'-2
min. Earth dist.	4372 Jan 21 02:02	0° 0 24'39	28.85427 AU	minimum elong	4379 Aug 07 22:38	17° 0 12'08	0°32'04
	4372 Feb 04 18:52	30° 0 18'52		max. Earth dist.	4379 Aug 08 02:47	17° 0 12'31	30.90437 AU
direct	4372 Apr 08 08:52	28° 5 59'39		retrograde	4379 Nov 21 20:40	19° 0 44'12	
	4372 Jun 08 20:20	0° 0		opposition	4380 Feb 08 02:37	18° 0 19'53	0°-32'-29
conjunction	4372 Jul 21 19:53	1° 0 30'11	0°-53'-24	min. Earth dist.	4380 Feb 07 22:57	18° 0 20'08	28.90838 AU
minimum elong	4372 Jul 21 19:53	1° 0 30'11	0°53'25	direct	4380 Apr 26 08:51	16° 0 55'11	
max. Earth dist.	4372 Jul 22 06:18	1° 0 31'10	30.85819 AU	conjunction	4380 Aug 09 12:25	19° 0 25'59	0°-28'-46
retrograde	4372 Nov 05 07:34	4° 0 03'26		minimum elong	4380 Aug 09 12:25	19° 0 25'59	0°28'47
opposition	4373 Jan 22 23:26	2° 0 38'51	0°-55'-34	max. Earth dist.	4380 Aug 09 17:00	19° 0 26'24	30.91245 AU
min. Earth dist.	4373 Jan 22 13:54	2° 0 39'31	28.86264 AU	retrograde	4380 Nov 23 07:14	21° 0 57'53	
direct	4373 Apr 10 20:12	1° 0 14'33		opposition	4381 Feb 09 13:08	20° 0 33'37	0°-28'-58
conjunction	4373 Jul 24 10:10	3° 0 45'10	0°-50'-33	min. Earth dist.	4381 Feb 09 09:28	20° 0 33'53	28.91705 AU
minimum elong	4373 Jul 24 10:10	3° 0 45'10	0°50'35	direct	4381 Apr 28 21:21	19° 0 08'54	
max. Earth dist.	4373 Jul 24 20:38	3° 0 46'09	30.86622 AU	conjunction	4381 Aug 12 02:10	21° 0 39'44	0°-25'-27
retrograde	4373 Nov 07 19:29	6° 0 18'17		minimum elong	4381 Aug 12 02:10	21° 0 39'44	0°25'29
opposition	4374 Jan 25 10:21	4° 0 53'46	0°-52'-28	max. Earth dist.	4381 Aug 12 05:04	21° 0 40'00	30.92191 AU
min. Earth dist.	4374 Jan 25 02:02	4° 0 54'21	28.87021 AU	retrograde	4381 Nov 25 19:38	24° 0 11'31	
direct	4374 Apr 13 08:23	3° 0 29'27		opposition	4382 Feb 11 23:33	22° 0 47'19	0°-25'-24
conjunction	4374 Jul 27 00:23	6° 0 00'07	0°-47'-37	min. Earth dist.	4382 Feb 11 20:25	22° 0 47'32	28.92729 AU
minimum elong	4374 Jul 27 00:23	6° 0 00'07	0°47'38	direct	4382 May 01 07:45	21° 0 22'34	
max. Earth dist.	4374 Jul 27 08:45	6° 0 00'53	30.87347 AU	conjunction	4382 Aug 14 16:08	23° 0 53'29	0°-22'-6
retrograde	4374 Nov 10 10:06	8° 0 33'04		minimum elong	4382 Aug 14 16:08	23° 0 53'29	0°22'07
opposition	4375 Jan 27 21:15	7° 0 08'36	0°-49'-18	max. Earth dist.	4382 Aug 14 19:29	23° 0 53'48	30.93279 AU
min. Earth dist.	4375 Jan 27 13:19	7° 0 09'09	28.87697 AU	retrograde	4382 Nov 28 06:43	26° 0 25'08	
direct	4375 Apr 15 21:43	5° 0 44'13		opposition	4383 Feb 14 10:03	25° 0 01'03	0°-21'-48
conjunction	4375 Jul 29 14:37	8° 0 14'55	0°-44'-37	min. Earth dist.	4383 Feb 14 07:47	25° 0 01'12	28.93866 AU
minimum elong	4375 Jul 29 14:37	8° 0 14'55	0°44'39	direct	4383 May 03 19:25	23° 0 36'19	
max. Earth dist.	4375 Jul 29 22:41	8° 0 15'40	30.87976 AU	conjunction	4383 Aug 17 05:51	26° 0 07'19	0°-18'-43

minimum elong	4383 Aug 17 05:51	26°07'19	0°18'44	opposition	4390 Mar 01 11:10	10°03'38'08	0°03'59
max. Earth dist.	4383 Aug 17 07:29	26°07'27	30.94472 AU	min. Earth dist.	4390 Mar 01 14:58	10°03'37'52	29.01157 AU
retrograde	4383 Nov 30 20:37	28°03'51		direct	4390 May 19 08:10	9°03'13'20	
opposition	4384 Feb 16 20:26	27°01'45'2	0°-18'-10				
min. Earth dist.	4384 Feb 16 18:19	27°01'50'1	28.95088 AU	conjunction	4390 Sep 02 06:29	11°03'44'35	0°05'32
direct	4384 May 05 08:03	25°02'50'10		minimum elong	4390 Sep 02 06:29	11°03'44'35	0°05'32
				behind sun begin	4390 Sep 02 00:08	11°03'44'02	
conjunction	4384 Aug 18 19:46	28°02'11'15	0°-15'-18	behind sun end	4390 Sep 02 12:49	11°03'45'09	
minimum elong	4384 Aug 18 19:47	28°02'11'15	0°15'19	max. Earth dist.	4390 Sep 02 00:47	11°03'44'05	31.01556 AU
behind sun begin	4384 Aug 18 18:10	28°02'11'06		retrograde	4390 Dec 16 05:06	14°03'15'02	
behind sun end	4384 Aug 18 21:23	28°02'11'23		opposition	4391 Mar 03 21:29	12°03'51'31	0°07'40
max. Earth dist.	4384 Aug 18 21:25	28°02'11'23	30.95701 AU	min. Earth dist.	4391 Mar 04 02:02	12°03'51'12	29.01959 AU
	4384 Oct 05 20:22	0°03'00		direct	4391 May 21 18:18	11°03'26'39	
retrograde	4384 Dec 02 07:52	0°03'52'40					
	4385 Jan 30 10:24	30°03'00		conjunction	4391 Sep 04 19:58	13°03'57'54	0°08'57
opposition	4385 Feb 18 06:59	29°02'28'48	0°-14'-30	minimum elong	4391 Sep 04 19:59	13°03'57'54	0°08'57
min. Earth dist.	4385 Feb 18 06:35	29°02'28'49	28.96315 AU	behind sun begin	4391 Sep 04 14:22	13°03'57'24	
direct	4385 May 07 20:07	28°02'04'07		behind sun end	4391 Sep 05 01:35	13°03'58'24	
	4385 Aug 05 10:51	0°03'00		max. Earth dist.	4391 Sep 04 14:38	13°03'57'26	31.02360 AU
				retrograde	4391 Dec 18 14:17	16°03'28'10	
conjunction	4385 Aug 21 09:36	0°03'35'16	0°-11'-52	opposition	4392 Mar 05 07:47	15°03'04'41	0°11'20
minimum elong	4385 Aug 21 09:36	0°03'35'16	0°11'53	min. Earth dist.	4392 Mar 05 13:16	15°03'04'18	29.02781 AU
behind sun begin	4385 Aug 21 05:07	0°03'34'52		direct	4392 May 23 06:27	13°03'39'46	
behind sun end	4385 Aug 21 14:05	0°03'35'40					
max. Earth dist.	4385 Aug 21 09:40	0°03'35'17	30.96911 AU	conjunction	4392 Sep 06 09:15	16°03'10'59	0°12'22
retrograde	4385 Dec 04 21:23	3°03'06'34		minimum elong	4392 Sep 06 09:15	16°03'10'59	0°12'22
opposition	4386 Feb 20 17:26	1°03'42'48	0°-10'-49	behind sun begin	4392 Sep 06 05:01	16°03'10'37	
min. Earth dist.	4386 Feb 20 17:01	1°03'42'50	28.97479 AU	behind sun end	4392 Sep 06 13:29	16°03'11'22	
direct	4386 May 10 08:54	0°03'18'08		max. Earth dist.	4392 Sep 06 02:13	16°03'10'21	31.03223 AU
				retrograde	4392 Dec 20 02:14	18°03'41'05	
conjunction	4386 Aug 23 23:35	2°03'49'21	0°-8'-26	opposition	4393 Mar 07 17:56	17°03'17'37	0°14'59
minimum elong	4386 Aug 23 23:35	2°03'49'21	0°08'26	min. Earth dist.	4393 Mar 07 23:18	17°03'17'15	29.03696 AU
behind sun begin	4386 Aug 23 17:49	2°03'48'50		direct	4393 May 25 18:58	15°03'52'39	
behind sun end	4386 Aug 24 05:21	2°03'49'51					
max. Earth dist.	4386 Aug 23 22:33	2°03'49'16	30.98016 AU	conjunction	4393 Sep 08 22:36	18°03'23'54	0°15'46
retrograde	4386 Dec 07 09:17	5°03'20'30		minimum elong	4393 Sep 08 22:36	18°03'23'54	0°15'46
opposition	4387 Feb 23 03:59	3°03'56'48	0°-7'-7	behind sun begin	4393 Sep 08 22:20	18°03'23'52	
min. Earth dist.	4387 Feb 23 05:33	3°03'56'42	28.98537 AU	behind sun end	4393 Sep 08 22:53	18°03'23'55	
direct	4387 May 12 20:17	2°03'32'08		max. Earth dist.	4393 Sep 08 15:54	18°03'23'17	31.04179 AU
				retrograde	4393 Dec 22 12:11	20°03'53'49	
conjunction	4387 Aug 26 13:30	5°03'03'23	0°-4'-59	opposition	4394 Mar 10 04:16	19°03'30'24	0°18'37
minimum elong	4387 Aug 26 13:30	5°03'03'23	0°05'01	min. Earth dist.	4394 Mar 10 11:00	19°03'29'56	29.04709 AU
behind sun begin	4387 Aug 26 07:05	5°03'02'49		direct	4394 May 28 06:45	18°03'05'25	
behind sun end	4387 Aug 26 19:54	5°03'03'57					
max. Earth dist.	4387 Aug 26 11:31	5°03'03'14	30.99025 AU	conjunction	4394 Sep 11 11:50	20°03'36'40	0°19'09
retrograde	4387 Dec 09 21:48	7°03'34'22		minimum elong	4394 Sep 11 11:50	20°03'36'40	0°19'09
opposition	4388 Feb 25 14:26	6°03'10'44	0°-3'-24	max. Earth dist.	4394 Sep 11 03:59	20°03'35'57	31.05255 AU
min. Earth dist.	4388 Feb 25 16:05	6°03'10'37	28.99485 AU	retrograde	4394 Dec 25 00:49	23°03'06'26	
direct	4388 May 14 08:55	4°03'46'02		opposition	4395 Mar 12 14:23	21°03'43'06	0°22'13
				min. Earth dist.	4395 Mar 12 20:35	21°03'42'39	29.05836 AU
conjunction	4388 Aug 28 03:07	7°03'17'18	0°-1'-30	direct	4395 May 30 19:33	20°03'18'06	
minimum elong	4388 Aug 28 03:05	7°03'17'18	0°01'30				
behind sun begin	4388 Aug 27 20:29	7°03'16'42		conjunction	4395 Sep 14 01:04	22°03'49'23	0°22'30
behind sun end	4388 Aug 28 09:41	7°03'17'53		minimum elong	4395 Sep 14 01:04	22°03'49'23	0°22'29
max. Earth dist.	4388 Aug 27 23:30	7°03'17'01	30.99925 AU	max. Earth dist.	4395 Sep 13 16:51	22°03'48'38	31.06426 AU
retrograde	4388 Dec 11 07:40	9°03'48'07		retrograde	4395 Dec 27 12:20	25°03'19'01	
asc. node	4389 Jan 30 03:05	9°03'09'18		opposition	4396 Mar 14 00:44	23°03'55'46	0°25'47
opposition	4389 Feb 27 00:56	8°03'24'32	0°00'17	min. Earth dist.	4396 Mar 14 08:25	23°03'55'13	29.07051 AU
min. Earth dist.	4389 Feb 27 04:12	8°03'24'18	29.00353 AU	direct	4396 Jun 01 07:12	22°03'30'48	
direct	4389 May 16 19:45	6°03'59'47					
				conjunction	4396 Sep 15 14:06	25°03'02'07	0°25'48
conjunction	4389 Aug 30 16:54	9°03'31'03	0°02'04	minimum elong	4396 Sep 15 14:06	25°03'02'07	0°25'49
minimum elong	4389 Aug 30 16:54	9°03'31'03	0°02'03	max. Earth dist.	4396 Sep 15 05:22	25°03'01'19	31.07666 AU
behind sun begin	4389 Aug 30 10:18	9°03'30'28		retrograde	4396 Dec 29 00:16	27°03'31'37	
behind sun end	4389 Aug 30 23:30	9°03'31'38		opposition	4397 Mar 16 10:56	26°03'08'28	0°29'18
max. Earth dist.	4389 Aug 30 13:13	9°03'30'45	31.00761 AU	min. Earth dist.	4397 Mar 16 18:32	26°03'07'56	29.08284 AU
retrograde	4389 Dec 13 17:37	12°03'01'40		direct	4397 Jun 03 20:18	24°03'43'31	

conjunction	4397 Sep 18 03:17	27° \mathring{M} 14'53	0°29'05	conjunction	4405 Oct 06 09:36	14° \mathring{L} 54'02	0°53'16
minimum elong	4397 Sep 18 03:16	27° \mathring{M} 14'53	0°29'05	minimum elong	4405 Oct 06 09:36	14° \mathring{L} 54'02	0°53'15
max. Earth dist.	4397 Sep 17 17:09	27° \mathring{M} 13'57	31.08877 AU	max. Earth dist.	4405 Oct 05 17:52	14° \mathring{L} 52'34	31.15618 AU
retrograde	4397 Dec 31 10:49	29° \mathring{M} 44'15		retrograde	4406 Jan 17 23:30	17° \mathring{L} 22'17	
opposition	4398 Mar 18 21:11	28° \mathring{M} 21'12	0°32'47	opposition	4406 Apr 05 07:22	15° \mathring{L} 59'33	0°58'21
min. Earth dist.	4398 Mar 19 06:20	28° \mathring{M} 20'33	29.09477 AU	min. Earth dist.	4406 Apr 05 21:09	15° \mathring{L} 58'35	29.16074 AU
direct	4398 Jun 06 06:47	26° \mathring{M} 56'16		direct	4406 Jun 24 07:54	14° \mathring{L} 34'26	
conjunction	4398 Sep 20 16:33	29° \mathring{M} 27'39	0°32'19	conjunction	4406 Oct 08 21:53	17° \mathring{L} 05'45	0°55'58
minimum elong	4398 Sep 20 16:33	29° \mathring{M} 27'39	0°32'19	minimum elong	4406 Oct 08 21:53	17° \mathring{L} 05'45	0°55'58
max. Earth dist.	4398 Sep 20 06:17	29° \mathring{M} 26'42	31.10019 AU	max. Earth dist.	4406 Oct 08 05:22	17° \mathring{L} 04'13	31.16484 AU
	4398 Oct 05 07:46	0° \mathring{L}		retrograde	4407 Jan 20 09:41	19° \mathring{L} 33'53	
retrograde	4399 Jan 02 21:08	1° \mathring{L} 56'54		opposition	4407 Apr 07 17:43	18° \mathring{L} 11'12	1°01'11
opposition	4399 Mar 21 07:33	0° \mathring{L} 33'55	0°36'13	min. Earth dist.	4407 Apr 08 08:17	18° \mathring{L} 10'11	29.17012 AU
min. Earth dist.	4399 Mar 21 17:18	0° \mathring{L} 33'14	29.10559 AU	direct	4407 Jun 26 18:26	16° \mathring{L} 46'07	
	4399 Apr 11 00:40	30° \mathring{R} \mathring{M}		conjunction	4407 Oct 11 10:00	19° \mathring{L} 17'25	0°58'36
direct	4399 Jun 08 19:13	29° \mathring{M} 09'00		minimum elong	4407 Oct 11 10:00	19° \mathring{L} 17'25	0°58'35
	4399 Aug 04 22:47	0° \mathring{L}		max. Earth dist.	4407 Oct 10 18:09	19° \mathring{L} 15'57	31.17477 AU
conjunction	4399 Sep 23 05:29	1° \mathring{L} 40'24	0°35'30	retrograde	4408 Jan 22 19:46	21° \mathring{L} 45'27	
minimum elong	4399 Sep 23 05:29	1° \mathring{L} 40'24	0°35'30	opposition	4408 Apr 09 04:00	20° \mathring{L} 22'51	1°03'57
max. Earth dist.	4399 Sep 22 17:11	1° \mathring{L} 39'16	31.11040 AU	min. Earth dist.	4408 Apr 09 18:35	20° \mathring{L} 21'49	29.18048 AU
retrograde	4400 Jan 05 08:25	4° \mathring{L} 09'31		direct	4408 Jun 28 07:08	18° \mathring{L} 57'47	
opposition	4400 Mar 22 17:56	2° \mathring{L} 46'36	0°39'35	conjunction	4408 Oct 12 22:04	21° \mathring{L} 29'06	1°01'08
min. Earth dist.	4400 Mar 23 04:25	2° \mathring{L} 45'52	29.11532 AU	minimum elong	4408 Oct 12 22:04	21° \mathring{L} 29'06	1°01'08
direct	4400 Jun 10 05:19	1° \mathring{L} 21'39		max. Earth dist.	4408 Oct 12 04:53	21° \mathring{L} 27'31	31.18554 AU
conjunction	4400 Sep 24 18:34	3° \mathring{L} 53'03	0°38'38	retrograde	4409 Jan 24 06:49	23° \mathring{L} 57'03	
minimum elong	4400 Sep 24 18:34	3° \mathring{L} 53'03	0°38'38	opposition	4409 Apr 11 14:09	22° \mathring{L} 34'31	1°06'36
max. Earth dist.	4400 Sep 24 06:23	3° \mathring{L} 51'56	31.11946 AU	min. Earth dist.	4409 Apr 12 05:00	22° \mathring{L} 33'29	29.19157 AU
retrograde	4401 Jan 06 17:13	6° \mathring{L} 22'02		direct	4409 Jun 30 17:02	21° \mathring{L} 09'30	
opposition	4401 Mar 25 04:13	4° \mathring{L} 59'10	0°42'53	conjunction	4409 Oct 15 10:19	23° \mathring{L} 40'50	1°03'34
min. Earth dist.	4401 Mar 25 15:58	4° \mathring{L} 58'21	29.12380 AU	minimum elong	4409 Oct 15 10:19	23° \mathring{L} 40'50	1°03'35
direct	4401 Jun 12 17:24	3° \mathring{L} 34'13		max. Earth dist.	4409 Oct 14 17:42	23° \mathring{L} 39'18	31.19658 AU
conjunction	4401 Sep 27 07:25	6° \mathring{L} 05'36	0°41'41	retrograde	4410 Jan 26 15:01	26° \mathring{L} 08'42	
minimum elong	4401 Sep 27 07:25	6° \mathring{L} 05'36	0°41'41	opposition	4410 Apr 14 00:35	24° \mathring{L} 46'15	1°09'10
max. Earth dist.	4401 Sep 26 17:12	6° \mathring{L} 04'17	31.12748 AU	min. Earth dist.	4410 Apr 14 16:28	24° \mathring{L} 45'09	29.20245 AU
retrograde	4402 Jan 09 04:36	8° \mathring{L} 34'26		direct	4410 Jul 03 04:57	23° \mathring{L} 21'17	
opposition	4402 Mar 27 14:29	7° \mathring{L} 11'35	0°46'08	conjunction	4410 Oct 17 22:19	25° \mathring{L} 52'36	1°05'56
min. Earth dist.	4402 Mar 28 02:21	7° \mathring{L} 10'46	29.13141 AU	minimum elong	4410 Oct 17 22:18	25° \mathring{L} 52'36	1°05'56
direct	4402 Jun 15 05:29	5° \mathring{L} 46'36		max. Earth dist.	4410 Oct 17 04:02	25° \mathring{L} 50'55	31.20717 AU
conjunction	4402 Sep 29 20:17	8° \mathring{L} 17'59	0°44'41	retrograde	4411 Jan 29 01:46	28° \mathring{L} 20'23	
minimum elong	4402 Sep 29 20:17	8° \mathring{L} 17'59	0°44'42	opposition	4411 Apr 16 10:58	26° \mathring{L} 58'00	1°11'38
max. Earth dist.	4402 Sep 29 06:12	8° \mathring{L} 16'41	31.13463 AU	min. Earth dist.	4411 Apr 17 02:42	26° \mathring{L} 56'55	29.21271 AU
retrograde	4403 Jan 11 13:49	10° \mathring{L} 46'40		direct	4411 Jul 05 15:45	25° \mathring{L} 33'03	
opposition	4403 Mar 30 00:47	9° \mathring{L} 23'51	0°49'18	conjunction	4411 Oct 20 10:27	28° \mathring{L} 04'22	1°08'11
min. Earth dist.	4403 Mar 30 14:16	9° \mathring{L} 22'54	29.13835 AU	minimum elong	4411 Oct 20 10:26	28° \mathring{L} 04'22	1°08'11
direct	4403 Jun 17 16:52	7° \mathring{L} 58'49		max. Earth dist.	4411 Oct 19 16:27	28° \mathring{L} 02'42	31.21683 AU
conjunction	4403 Oct 02 08:50	10° \mathring{L} 30'11	0°47'37		4411 Dec 18 16:44	0° \mathring{M}	
minimum elong	4403 Oct 02 08:50	10° \mathring{L} 30'11	0°47'37	retrograde	4412 Jan 31 11:00	0° \mathring{M} 32'03	
max. Earth dist.	4403 Oct 01 17:34	10° \mathring{L} 28'46	31.14152 AU		4412 Mar 16 11:17	30° \mathring{R} \mathring{L}	
retrograde	4404 Jan 14 01:40	12° \mathring{L} 58'43		opposition	4412 Apr 17 21:34	29° \mathring{L} 09'44	1°13'59
opposition	4404 Mar 31 10:58	11° \mathring{L} 35'55	0°52'24	min. Earth dist.	4412 Apr 18 14:51	29° \mathring{L} 08'32	29.22190 AU
min. Earth dist.	4404 Mar 31 23:56	11° \mathring{L} 35'01	29.14526 AU	direct	4412 Jul 07 01:59	27° \mathring{L} 44'47	
direct	4404 Jun 19 05:55	10° \mathring{L} 10'51			4412 Oct 14 16:49	0° \mathring{M}	
conjunction	4404 Oct 03 21:13	12° \mathring{L} 42'11	0°50'29	conjunction	4412 Oct 21 22:17	0° \mathring{M} 16'04	1°10'20
minimum elong	4404 Oct 03 21:13	12° \mathring{L} 42'11	0°50'29	minimum elong	4412 Oct 21 22:17	0° \mathring{M} 16'04	1°10'21
max. Earth dist.	4404 Oct 03 05:46	12° \mathring{L} 40'46	31.14847 AU	max. Earth dist.	4412 Oct 21 03:04	0° \mathring{M} 14'17	31.22543 AU
retrograde	4405 Jan 15 12:33	15° \mathring{L} 10'35		retrograde	4413 Feb 01 22:09	2° \mathring{M} 43'39	
opposition	4405 Apr 02 21:17	13° \mathring{L} 47'48	0°55'25	opposition	4413 Apr 20 08:00	1° \mathring{M} 21'22	1°16'14
min. Earth dist.	4405 Apr 03 11:34	13° \mathring{L} 46'48	29.15259 AU	min. Earth dist.	4413 Apr 21 00:53	1° \mathring{M} 20'12	29.22983 AU
direct	4405 Jun 21 18:13	12° \mathring{L} 22'43			4413 Jun 24 17:18	30° \mathring{R} \mathring{L}	
				direct	4413 Jul 09 15:08	29° \mathring{L} 56'24	

	4413 Jul 24 12:38	0°M		direct	4421 Jul 27 12:34	17°M24'16	
				max. Earth dist.	4421 Nov 10 08:01	19°M53'17	31.28374 AU
conjunction	4413 Oct 24 10:16	2°M27'40	1°12'24				
minimum elong	4413 Oct 24 10:16	2°M27'40	1°12'23	conjunction	4421 Nov 11 04:53	19°M55'13	1°24'49
max. Earth dist.	4413 Oct 23 14:36	2°M25'51	31.23264 AU	minimum elong	4421 Nov 11 04:53	19°M55'13	1°24'49
retrograde	4414 Feb 04 08:33	4°M55'08		retrograde	4422 Feb 21 16:04	22°M22'05	
opposition	4414 Apr 22 18:32	3°M32'52	1°18'22	opposition	4422 May 10 07:12	21°M00'04	1°31'09
min. Earth dist.	4414 Apr 23 12:56	3°M31'35	29.23657 AU	min. Earth dist.	4422 May 11 01:48	20°M58'47	29.28866 AU
direct	4414 Jul 12 03:07	2°M07'54		direct	4422 Jul 30 00:57	19°M35'13	
conjunction	4414 Oct 26 22:05	4°M39'06	1°14'20	conjunction	4422 Nov 13 15:58	22°M06'11	1°25'50
minimum elong	4414 Oct 26 22:05	4°M39'06	1°14'21	minimum elong	4422 Nov 13 15:58	22°M06'11	1°25'50
max. Earth dist.	4414 Oct 26 01:59	4°M37'15	31.23888 AU	max. Earth dist.	4422 Nov 12 19:09	22°M04'15	31.29177 AU
retrograde	4415 Feb 06 19:07	7°M06'27		retrograde	4423 Feb 24 02:58	24°M33'03	
opposition	4415 Apr 25 05:04	5°M44'11	1°20'24	opposition	4423 May 12 18:12	23°M11'05	1°32'10
min. Earth dist.	4415 Apr 25 23:08	5°M42'56	29.24229 AU	min. Earth dist.	4423 May 13 13:53	23°M09'44	29.29648 AU
direct	4415 Jul 14 16:51	4°M19'12		direct	4423 Aug 01 11:51	21°M46'19	
				max. Earth dist.	4423 Nov 15 06:00	24°M15'19	31.29913 AU
conjunction	4415 Oct 29 09:33	6°M50'21	1°16'11	conjunction	4423 Nov 16 02:51	24°M17'16	1°26'44
minimum elong	4415 Oct 29 09:33	6°M50'21	1°16'11	minimum elong	4423 Nov 16 02:50	24°M17'16	1°26'44
max. Earth dist.	4415 Oct 28 12:36	6°M48'25	31.24421 AU	retrograde	4424 Feb 26 13:39	26°M44'07	
retrograde	4416 Feb 09 05:31	9°M17'36		opposition	4424 May 14 05:07	25°M22'12	1°33'04
opposition	4416 Apr 26 15:39	7°M55'19	1°22'18	min. Earth dist.	4424 May 15 00:22	25°M20'53	29.30319 AU
min. Earth dist.	4416 Apr 27 10:35	7°M54'01	29.24753 AU	direct	4424 Aug 03 00:45	23°M57'28	
direct	4416 Jul 16 04:02	6°M30'19					
conjunction	4416 Oct 30 21:06	9°M01'24	1°17'54	conjunction	4424 Nov 17 13:49	26°M28'24	1°27'30
minimum elong	4416 Oct 30 21:06	9°M01'24	1°17'55	minimum elong	4424 Nov 17 13:49	26°M28'24	1°27'30
max. Earth dist.	4416 Oct 30 00:48	8°M59'31	31.24931 AU	max. Earth dist.	4424 Nov 16 16:05	26°M26'23	31.30514 AU
retrograde	4417 Feb 10 15:08	11°M28'31		retrograde	4425 Feb 28 00:49	28°M55'14	
opposition	4417 Apr 29 02:03	10°M06'16	1°24'05	opposition	4425 May 16 16:01	27°M33'21	1°33'49
min. Earth dist.	4417 Apr 29 21:06	10°M04'56	29.25258 AU	min. Earth dist.	4425 May 17 12:07	27°M31'59	29.30861 AU
direct	4417 Jul 18 17:41	8°M41'13		direct	4425 Aug 05 11:49	26°M08'39	
max. Earth dist.	4417 Nov 01 10:59	11°M10'17	31.25452 AU	max. Earth dist.	4425 Nov 19 03:41	28°M37'35	31.30977 AU
conjunction	4417 Nov 02 08:25	11°M12'16	1°19'31	conjunction	4425 Nov 20 00:52	28°M39'34	1°28'09
minimum elong	4417 Nov 02 08:25	11°M12'16	1°19'32	minimum elong	4425 Nov 20 00:52	28°M39'34	1°28'09
retrograde	4418 Feb 13 01:45	13°M39'17		retrograde	4425 Dec 27 23:23	0°M	
opposition	4418 May 01 12:36	12°M17'02	1°25'45		4426 Mar 02 11:22	1°M06'20	
min. Earth dist.	4418 May 02 07:26	12°M15'44	29.25821 AU		4426 May 09 15:46	30°M	
direct	4418 Jul 21 04:36	10°M52'00		opposition	4426 May 19 03:08	29°M44'29	1°34'26
				min. Earth dist.	4426 May 19 23:27	29°M43'06	29.31240 AU
conjunction	4418 Nov 04 19:41	13°M23'00	1°21'01	direct	4426 Aug 08 02:11	28°M19'48	
minimum elong	4418 Nov 04 19:40	13°M23'00	1°21'02		4426 Oct 30 09:11	0°M	
max. Earth dist.	4418 Nov 03 23:23	13°M21'07	31.26045 AU				
	4418 Dec 22 02:50	15°M		conjunction	4426 Nov 22 11:35	0°M50'39	1°28'40
retrograde	4419 Feb 15 09:34	15°M49'57		minimum elong	4426 Nov 22 11:35	0°M50'39	1°28'40
	4419 Apr 13 23:35	15°M		max. Earth dist.	4426 Nov 21 13:09	0°M48'34	31.31284 AU
opposition	4419 May 03 23:18	14°M27'44	1°27'18	retrograde	4427 Mar 04 22:14	3°M17'24	
min. Earth dist.	4419 May 04 18:34	14°M26'24	29.26462 AU	opposition	4427 May 21 14:14	1°M55'32	1°34'56
direct	4419 Jul 23 16:40	13°M02'43		min. Earth dist.	4427 May 22 10:25	1°M54'09	29.31486 AU
	4419 Oct 23 01:26	15°M		direct	4427 Aug 10 13:45	0°M30'51	
max. Earth dist.	4419 Nov 06 09:30	15°M31'42	31.26746 AU				
conjunction	4419 Nov 07 06:44	15°M33'40	1°22'25	conjunction	4427 Nov 24 22:25	3°M01'38	1°29'03
minimum elong	4419 Nov 07 06:44	15°M33'40	1°22'25	minimum elong	4427 Nov 24 22:25	3°M01'38	1°29'04
retrograde	4420 Feb 17 20:01	18°M00'34		max. Earth dist.	4427 Nov 24 00:53	2°M59'38	31.31462 AU
opposition	4420 May 05 09:49	16°M38'25	1°28'43	retrograde	4428 Mar 06 06:02	5°M28'19	
min. Earth dist.	4420 May 06 04:13	16°M37'08	29.27219 AU	opposition	4428 May 23 01:19	4°M06'27	1°35'17
direct	4420 Jul 25 02:57	15°M13'26		min. Earth dist.	4428 May 23 22:15	4°M05'01	29.31608 AU
				direct	4428 Aug 12 02:26	2°M41'45	
conjunction	4420 Nov 08 17:51	17°M44'24	1°23'40	max. Earth dist.	4428 Nov 25 10:20	5°M10'21	31.31549 AU
minimum elong	4420 Nov 08 17:51	17°M44'24	1°23'41	conjunction	4428 Nov 26 08:55	5°M12'27	1°29'19
max. Earth dist.	4420 Nov 07 21:34	17°M42'30	31.27538 AU	minimum elong	4428 Nov 26 08:55	5°M12'27	1°29'20
retrograde	4421 Feb 19 05:05	20°M11'17		retrograde	4429 Mar 08 16:14	7°M39'05	
opposition	4421 May 07 20:35	18°M49'11	1°30'00	opposition	4429 May 25 12:20	6°M17'11	1°35'30
min. Earth dist.	4421 May 08 16:02	18°M47'50	29.28038 AU	min. Earth dist.	4429 May 26 08:27	6°M15'48	29.31663 AU

direct	4429 Aug 14 13:51	4°♂52'27		conjunction	4437 Dec 16 04:28	24°♂46'18	1°25'59
				minimum elong	4437 Dec 16 04:28	24°♂46'18	1°25'59
conjunction	4429 Nov 28 19:26	7°♂23'04	1°29'28	retrograde	4438 Mar 28 11:55	27°♂13'02	
minimum elong	4429 Nov 28 19:26	7°♂23'04	1°29'28	opposition	4438 Jun 14 18:25	25°♂51'11	1°31'19
max. Earth dist.	4429 Nov 27 21:51	7°♂21'03	31.31580 AU	min. Earth dist.	4438 Jun 15 12:25	25°♂49'57	29.33036 AU
retrograde	4430 Mar 11 00:43	9°♂49'39		direct	4438 Sep 03 22:21	24°♂26'45	
opposition	4430 May 27 23:31	8°♂27'43	1°35'35				
min. Earth dist.	4430 May 28 20:29	8°♂26'17	29.31700 AU	conjunction	4438 Dec 18 14:35	26°♂56'58	1°24'59
direct	4430 Aug 17 00:32	7°♂02'58		minimum elong	4438 Dec 18 14:35	26°♂56'58	1°24'59
max. Earth dist.	4430 Nov 30 08:04	9°♂31'28	31.31643 AU	max. Earth dist.	4438 Dec 17 19:29	26°♂55'10	31.32870 AU
				retrograde	4439 Mar 30 21:08	29°♂23'44	
conjunction	4430 Dec 01 05:43	9°♂33'30	1°29'28	opposition	4439 Jun 17 06:15	28°♂01'52	1°30'12
minimum elong	4430 Dec 01 05:43	9°♂33'30	1°29'29	min. Earth dist.	4439 Jun 18 01:10	28°♂00'35	29.32846 AU
retrograde	4431 Mar 13 10:23	12°♂00'02		direct	4439 Sep 06 09:15	26°♂37'28	
opposition	4431 May 30 10:39	10°♂38'05	1°35'31	max. Earth dist.	4439 Dec 20 05:11	29°♂05'48	31.32618 AU
min. Earth dist.	4431 May 31 06:10	10°♂36'45	29.31791 AU				
direct	4431 Aug 19 12:49	9°♂13'20		conjunction	4439 Dec 21 00:26	29°♂07'36	1°23'52
				minimum elong	4439 Dec 21 00:26	29°♂07'36	1°23'52
conjunction	4431 Dec 03 15:53	11°♂43'47	1°29'21		4440 Jan 13 19:25	0°♂	
minimum elong	4431 Dec 03 15:53	11°♂43'47	1°29'22	retrograde	4440 Apr 01 06:59	1°♂34'25	
max. Earth dist.	4431 Dec 02 18:47	11°♂41'49	31.31770 AU	opposition	4440 Jun 18 17:53	0°♂12'31	1°28'56
retrograde	4432 Mar 14 20:20	14°♂10'20		min. Earth dist.	4440 Jun 19 11:36	0°♂11'19	29.32517 AU
opposition	4432 May 31 21:55	12°♂48'21	1°35'20		4440 Jun 26 10:35	30°♂	
min. Earth dist.	4432 Jun 01 17:53	12°♂46'59	29.31970 AU	direct	4440 Sep 07 21:30	28°♂48'07	
direct	4432 Aug 20 22:47	11°♂23'38			4440 Nov 15 19:54	0°♂	
max. Earth dist.	4432 Dec 04 05:40	13°♂52'07	31.31996 AU				
				conjunction	4440 Dec 22 10:21	1°♂18'11	1°22'37
conjunction	4432 Dec 05 02:05	13°♂54'02	1°29'07	minimum elong	4440 Dec 22 10:21	1°♂18'11	1°22'38
minimum elong	4432 Dec 05 02:05	13°♂54'02	1°29'07	max. Earth dist.	4440 Dec 21 15:16	1°♂16'24	31.32232 AU
retrograde	4433 Mar 17 06:27	16°♂20'34		retrograde	4441 Apr 03 17:03	3°♂45'02	
opposition	4433 Jun 03 08:59	14°♂58'37	1°35'00	opposition	4441 Jun 21 05:34	2°♂23'05	1°27'34
min. Earth dist.	4433 Jun 04 03:55	14°♂57'20	29.32218 AU	min. Earth dist.	4441 Jun 21 23:56	2°♂21'50	29.32091 AU
direct	4433 Aug 23 10:51	13°♂33'56		direct	4441 Sep 10 07:15	0°♂58'40	
conjunction	4433 Dec 07 12:14	16°♂04'18	1°28'44	conjunction	4441 Dec 24 20:09	3°♂28'39	1°21'16
minimum elong	4433 Dec 07 12:14	16°♂04'18	1°28'45	minimum elong	4441 Dec 24 20:09	3°♂28'39	1°21'17
max. Earth dist.	4433 Dec 06 15:33	16°♂02'22	31.32273 AU	max. Earth dist.	4441 Dec 24 01:54	3°♂26'57	31.31783 AU
retrograde	4434 Mar 19 17:59	18°♂30'53		retrograde	4442 Apr 06 03:00	5°♂55'32	
opposition	4434 Jun 05 20:21	17°♂08'57	1°34'32	opposition	4442 Jun 23 17:20	4°♂33'31	1°26'04
min. Earth dist.	4434 Jun 06 15:25	17°♂07'39	29.32514 AU	min. Earth dist.	4442 Jun 24 10:32	4°♂32'21	29.31618 AU
direct	4434 Aug 25 21:40	15°♂44'19		direct	4442 Sep 12 19:15	3°♂09'07	
				max. Earth dist.	4442 Dec 26 11:20	5°♂37'18	31.31319 AU
conjunction	4434 Dec 09 22:18	18°♂14'40	1°28'14				
minimum elong	4434 Dec 09 22:18	18°♂14'40	1°28'15	conjunction	4442 Dec 27 05:37	5°♂39'00	1°19'49
max. Earth dist.	4434 Dec 09 02:56	18°♂12'51	31.32566 AU	minimum elong	4442 Dec 27 05:37	5°♂39'01	1°19'49
retrograde	4435 Mar 22 04:30	20°♂41'16		retrograde	4443 Apr 08 14:35	8°♂05'56	
opposition	4435 Jun 08 07:49	19°♂19'22	1°33'56	opposition	4443 Jun 26 05:11	6°♂43'52	1°24'26
min. Earth dist.	4435 Jun 09 02:39	19°♂18'05	29.32782 AU	min. Earth dist.	4443 Jun 26 22:05	6°♂42'43	29.31186 AU
direct	4435 Aug 28 11:10	17°♂54'48		direct	4443 Sep 15 06:18	5°♂19'27	
conjunction	4435 Dec 12 08:18	20°♂25'07	1°27'37	conjunction	4443 Dec 29 15:16	7°♂49'17	1°18'14
minimum elong	4435 Dec 12 08:18	20°♂25'07	1°27'37	minimum elong	4443 Dec 29 15:16	7°♂49'17	1°18'15
max. Earth dist.	4435 Dec 11 12:08	20°♂23'14	31.32811 AU	max. Earth dist.	4443 Dec 28 22:44	7°♂47'44	31.30923 AU
retrograde	4436 Mar 23 16:02	22°♂51'46		retrograde	4444 Apr 10 01:15	10°♂16'15	
opposition	4436 Jun 09 19:10	21°♂29'54	1°33'12	opposition	4444 Jun 27 16:53	8°♂54'08	1°22'42
min. Earth dist.	4436 Jun 10 13:32	21°♂28'39	29.32995 AU	min. Earth dist.	4444 Jun 28 09:04	8°♂53'02	29.30827 AU
direct	4436 Aug 29 22:04	20°♂05'23		direct	4444 Sep 16 19:27	7°♂29'45	
				max. Earth dist.	4444 Dec 30 07:54	9°♂57'57	31.30622 AU
conjunction	4436 Dec 13 18:30	22°♂35'41	1°26'51				
minimum elong	4436 Dec 13 18:30	22°♂35'41	1°26'52	conjunction	4444 Dec 31 00:44	9°♂59'32	1°16'33
max. Earth dist.	4436 Dec 12 23:27	22°♂33'54	31.32965 AU	minimum elong	4444 Dec 31 00:44	9°♂59'32	1°16'33
retrograde	4437 Mar 26 00:55	25°♂02'22		retrograde	4445 Apr 12 12:49	12°♂26'34	
opposition	4437 Jun 12 06:49	23°♂40'31	1°32'20	opposition	4445 Jun 30 04:41	11°♂04'26	1°20'50
min. Earth dist.	4437 Jun 13 01:47	23°♂39'13	29.33082 AU	min. Earth dist.	4445 Jun 30 19:40	11°♂03'25	29.30575 AU
direct	4437 Sep 01 10:44	22°♂16'03		direct	4445 Sep 19 05:51	9°♂40'06	
max. Earth dist.	4437 Dec 15 08:32	24°♂44'26	31.32991 AU				
				conjunction	4446 Jan 02 10:15	12°♂09'50	1°14'45

minimum elong	4446 Jan 02 10:15	12° $\overline{3}$ 09'50	1°14'46	retrograde	4454 May 02 13:08	2° \approx 03'18	
max. Earth dist.	4446 Jan 01 19:13	12° $\overline{3}$ 08'26	31.30409 AU	opposition	4454 Jul 20 18:31	0° \approx 40'54	0°59'11
retrograde	4446 Apr 14 22:13	14° $\overline{3}$ 36'57		min. Earth dist.	4454 Jul 21 04:55	0° \approx 40'12	29.26925 AU
opposition	4446 Jul 02 16:41	13° $\overline{3}$ 14'50	1°18'51		4454 Aug 16 01:09	30° \overline{R} $\overline{3}$	
min. Earth dist.	4446 Jul 03 07:36	13° $\overline{3}$ 13'49	29.30389 AU	direct	4454 Oct 09 13:07	29° $\overline{3}$ 16'53	
direct	4446 Sep 21 18:47	11° $\overline{3}$ 50'33			4454 Nov 30 17:37	0° \approx	
conjunction	4447 Jan 04 19:40	14° $\overline{3}$ 20'15	1°12'51	conjunction	4455 Jan 21 23:42	1° \approx 46'05	0°54'03
minimum elong	4447 Jan 04 19:40	14° $\overline{3}$ 20'15	1°12'51	minimum elong	4455 Jan 21 23:42	1° \approx 46'05	0°54'04
max. Earth dist.	4447 Jan 04 04:29	14° $\overline{3}$ 18'49	31.30262 AU	max. Earth dist.	4455 Jan 21 13:31	1° \approx 45'08	31.26480 AU
retrograde	4447 Apr 17 10:07	16° $\overline{3}$ 47'27		retrograde	4455 May 04 23:14	4° \approx 14'03	
opposition	4447 Jul 05 04:33	15° $\overline{3}$ 25'20	1°16'46	opposition	4455 Jul 23 06:58	2° \approx 51'33	0°56'18
min. Earth dist.	4447 Jul 05 17:57	15° $\overline{3}$ 24'25	29.30250 AU	min. Earth dist.	4455 Jul 23 17:14	2° \approx 50'52	29.26109 AU
direct	4447 Sep 24 06:44	14° $\overline{3}$ 01'07		direct	4455 Oct 12 02:13	1° \approx 27'33	
conjunction	4448 Jan 07 05:08	16° $\overline{3}$ 30'47	1°10'50	conjunction	4456 Jan 24 08:56	3° \approx 56'40	0°51'19
minimum elong	4448 Jan 07 05:08	16° $\overline{3}$ 30'47	1°10'50	minimum elong	4456 Jan 24 08:56	3° \approx 56'40	0°51'20
max. Earth dist.	4448 Jan 06 15:11	16° $\overline{3}$ 29'28	31.30117 AU	max. Earth dist.	4456 Jan 23 22:52	3° \approx 55'44	31.25695 AU
retrograde	4448 Apr 18 19:46	18° $\overline{3}$ 58'06		retrograde	4456 May 06 11:31	6° \approx 24'43	
opposition	4448 Jul 06 16:42	17° $\overline{3}$ 35'58	1°14'33	opposition	4456 Jul 24 19:18	5° \approx 02'10	0°53'21
min. Earth dist.	4448 Jul 07 06:40	17° $\overline{3}$ 35'01	29.30088 AU	min. Earth dist.	4456 Jul 25 03:43	5° \approx 01'36	29.25353 AU
direct	4448 Sep 25 17:54	16° $\overline{3}$ 11'49		direct	4456 Oct 13 14:29	3° \approx 38'10	
conjunction	4449 Jan 08 14:39	18° $\overline{3}$ 41'26	1°08'43	conjunction	4457 Jan 25 18:17	6° \approx 07'15	0°48'31
minimum elong	4449 Jan 08 14:39	18° $\overline{3}$ 41'26	1°08'42	minimum elong	4457 Jan 25 18:17	6° \approx 07'15	0°48'31
max. Earth dist.	4449 Jan 08 01:00	18° $\overline{3}$ 40'09	31.29934 AU	max. Earth dist.	4457 Jan 25 09:38	6° \approx 06'27	31.24972 AU
retrograde	4449 Apr 21 05:32	21° $\overline{3}$ 08'50		retrograde	4457 May 08 21:27	8° \approx 35'26	
opposition	4449 Jul 09 04:41	19° $\overline{3}$ 46'43	1°12'14	opposition	4457 Jul 27 07:49	7° \approx 12'50	0°50'19
min. Earth dist.	4449 Jul 09 17:13	19° $\overline{3}$ 45'52	29.29856 AU	min. Earth dist.	4457 Jul 27 16:19	7° \approx 12'15	29.24678 AU
direct	4449 Sep 28 05:42	18° $\overline{3}$ 22'37		direct	4457 Oct 16 01:50	5° \approx 48'53	
max. Earth dist.	4450 Jan 10 10:49	20° $\overline{3}$ 50'56	31.29654 AU				
conjunction	4450 Jan 11 00:13	20° $\overline{3}$ 52'11	1°06'29	conjunction	4458 Jan 28 03:37	8° \approx 17'55	0°45'39
minimum elong	4450 Jan 11 00:13	20° $\overline{3}$ 52'11	1°06'30	minimum elong	4458 Jan 28 03:37	8° \approx 17'55	0°45'39
retrograde	4450 Apr 23 16:03	23° $\overline{3}$ 19'43		max. Earth dist.	4458 Jan 27 19:55	8° \approx 17'12	31.24358 AU
opposition	4450 Jul 11 17:05	21° $\overline{3}$ 57'33	1°09'49	retrograde	4458 May 11 07:45	10° \approx 46'14	
min. Earth dist.	4450 Jul 12 06:01	21° $\overline{3}$ 56'41	29.29528 AU	opposition	4458 Jul 29 20:19	9° \approx 23'37	0°47'12
direct	4450 Sep 30 15:18	20° $\overline{3}$ 33'30		min. Earth dist.	4458 Jul 30 02:46	9° \approx 23'11	29.24095 AU
				direct	4458 Oct 18 13:42	7° \approx 59'44	
conjunction	4451 Jan 13 09:43	23° $\overline{3}$ 03'01	1°04'11	conjunction	4459 Jan 30 12:51	10° \approx 28'45	0°42'42
minimum elong	4451 Jan 13 09:43	23° $\overline{3}$ 03'01	1°04'11	minimum elong	4459 Jan 30 12:51	10° \approx 28'45	0°42'42
max. Earth dist.	4451 Jan 12 21:16	23° $\overline{3}$ 01'51	31.29268 AU	max. Earth dist.	4459 Jan 30 05:47	10° \approx 28'05	31.23808 AU
retrograde	4451 Apr 26 02:28	25° $\overline{3}$ 30'38		retrograde	4459 May 13 18:43	12° \approx 57'14	
opposition	4451 Jul 14 05:25	24° $\overline{3}$ 08'26	1°07'18	opposition	4459 Aug 01 08:58	11° \approx 34'35	0°44'01
min. Earth dist.	4451 Jul 14 17:17	24° $\overline{3}$ 07'38	29.29062 AU	min. Earth dist.	4459 Aug 01 15:24	11° \approx 34'09	29.23574 AU
direct	4451 Oct 03 03:22	22° $\overline{3}$ 44'25		direct	4459 Oct 20 23:10	10° \approx 10'47	
conjunction	4452 Jan 15 19:16	25° $\overline{3}$ 13'52	1°01'46	conjunction	4460 Feb 01 22:18	12° \approx 39'46	0°39'41
minimum elong	4452 Jan 15 19:16	25° $\overline{3}$ 13'52	1°01'47	minimum elong	4460 Feb 01 22:18	12° \approx 39'46	0°39'42
max. Earth dist.	4452 Jan 15 06:21	25° $\overline{3}$ 12'39	31.28735 AU	max. Earth dist.	4460 Feb 01 16:40	12° \approx 39'14	31.23305 AU
retrograde	4452 Apr 27 14:23	27° $\overline{3}$ 41'34			4460 Apr 22 20:07	15° \approx	
opposition	4452 Jul 15 17:39	26° $\overline{3}$ 19'19	1°04'41	retrograde	4460 May 15 05:27	15° \approx 08'25	
min. Earth dist.	4452 Jul 16 05:33	26° $\overline{3}$ 18'31	29.28463 AU		4460 Jun 07 04:19	15° \overline{R} \approx	
direct	4452 Oct 04 13:49	24° $\overline{3}$ 55'19		opposition	4460 Aug 02 21:25	13° \approx 45'46	0°40'45
				min. Earth dist.	4460 Aug 03 02:28	13° \approx 45'25	29.23057 AU
conjunction	4453 Jan 17 04:56	27° $\overline{3}$ 24'41	0°59'17	direct	4460 Oct 22 10:47	12° \approx 22'02	
minimum elong	4453 Jan 17 04:56	27° $\overline{3}$ 24'41	0°59'17				
max. Earth dist.	4453 Jan 16 17:27	27° $\overline{3}$ 23'36	31.28071 AU	conjunction	4461 Feb 03 07:42	14° \approx 51'00	0°36'37
retrograde	4453 Apr 30 01:06	29° $\overline{3}$ 52'28		minimum elong	4461 Feb 03 07:42	14° \approx 51'00	0°36'37
opposition	4453 Jul 18 06:06	28° $\overline{3}$ 30'09	1°01'58	max. Earth dist.	4461 Feb 03 01:55	14° \approx 50'27	31.22781 AU
min. Earth dist.	4453 Jul 18 17:34	28° $\overline{3}$ 29'23	29.27727 AU		4461 Feb 07 06:54	15° \approx	
direct	4453 Oct 07 02:27	27° $\overline{3}$ 06'09		retrograde	4461 May 17 18:01	17° \approx 19'50	
				opposition	4461 Aug 05 10:12	15° \approx 57'10	0°37'26
conjunction	4454 Jan 19 14:15	29° $\overline{3}$ 35'26	0°56'42	min. Earth dist.	4461 Aug 05 14:57	15° \approx 56'50	29.22517 AU
minimum elong	4454 Jan 19 14:15	29° $\overline{3}$ 35'26	0°56'43		4461 Sep 13 03:21	15° \overline{R} \approx	
max. Earth dist.	4454 Jan 19 02:20	29° $\overline{3}$ 34'19	31.27298 AU	direct	4461 Oct 24 20:31	14° \approx 33'30	
	4454 Jan 30 11:58	0° \approx			4461 Dec 04 05:36	15° \approx	

conjunction	4462 Feb 05 17:12	17° 02 '27	0°33'29	max. Earth dist.	4469 Feb 20 13:03	2° 04 '20	31.15184 AU
minimum elong	4462 Feb 05 17:12	17° 02 '27	0°33'29	retrograde	4469 Jun 04 14:40	4° 05 '11	
max. Earth dist.	4462 Feb 05 13:11	17° 02 '04	31.22204 AU	opposition	4469 Aug 23 17:21	3° 03 '53	0°09'22
retrograde	4462 May 20 05:27	19° 31 '27		min. Earth dist.	4469 Aug 23 16:08	3° 03 '58	29.14650 AU
opposition	4462 Aug 07 23:06	18° 08 '45	0°34'04	direct	4469 Nov 11 19:59	2° 07 '19	
min. Earth dist.	4462 Aug 08 03:16	18° 08 '28	29.21888 AU				
direct	4462 Oct 27 07:59	16° 45 '09		conjunction	4470 Feb 22 21:55	4° 03 '54	0°07'08
				minimum elong	4470 Feb 22 21:56	4° 03 '54	0°07'09
conjunction	4463 Feb 08 02:44	19° 14 '05	0°30'18	behind sun begin	4470 Feb 22 16:01	4° 03 '51	
minimum elong	4463 Feb 08 02:44	19° 14 '05	0°30'18	behind sun end	4470 Feb 23 03:51	4° 03 '51	
max. Earth dist.	4463 Feb 07 22:14	19° 13 '40	31.21529 AU	max. Earth dist.	4470 Feb 22 22:36	4° 03 '51	31.14144 AU
retrograde	4463 May 22 18:27	21° 43 '15		retrograde	4470 Jun 07 02:29	7° 05 '52	
opposition	4463 Aug 10 11:52	20° 20 '30	0°30'39	opposition	4470 Aug 26 06:22	5° 42 '28	0°05'44
min. Earth dist.	4463 Aug 10 15:07	20° 20 '17	29.21156 AU	min. Earth dist.	4470 Aug 26 04:26	5° 42 '36	29.13669 AU
direct	4463 Oct 29 17:47	18° 56 '56		direct	4470 Nov 14 05:43	4° 18 '55	
conjunction	4464 Feb 10 12:28	21° 25 '50	0°27'05	conjunction	4471 Feb 25 07:41	6° 47 '23	0°03'45
minimum elong	4464 Feb 10 12:28	21° 25 '50	0°27'05	minimum elong	4471 Feb 25 07:40	6° 47 '23	0°03'45
max. Earth dist.	4464 Feb 10 09:17	21° 25 '33	31.20718 AU	behind sun begin	4471 Feb 25 01:20	6° 46 '48	
retrograde	4464 May 24 06:05	23° 55 '09		behind sun end	4471 Feb 25 14:01	6° 47 '57	
opposition	4464 Aug 12 00:50	22° 32 '21	0°27'11	max. Earth dist.	4471 Feb 25 10:27	6° 47 '36	31.13208 AU
min. Earth dist.	4464 Aug 12 04:15	22° 32 '07	29.20266 AU	retrograde	4471 Jun 09 13:19	9° 17 '36	
direct	4464 Oct 31 07:01	21° 08 '49		opposition	4471 Aug 28 19:13	7° 54 '09	0°02'06
				min. Earth dist.	4471 Aug 28 16:21	7° 54 '21	29.12769 AU
conjunction	4465 Feb 11 22:04	23° 37 '39	0°23'49	direct	4471 Nov 16 16:47	6° 30 '38	
minimum elong	4465 Feb 11 22:04	23° 37 '40	0°23'49				
max. Earth dist.	4465 Feb 11 18:40	23° 37 '21	31.19763 AU	conjunction	4472 Feb 27 17:17	8° 59 '05	0°00'17
retrograde	4465 May 26 19:40	26° 07 '05		minimum elong	4472 Feb 27 17:17	8° 59 '05	0°00'17
opposition	4465 Aug 14 13:41	24° 44 '12	0°23'40	behind sun begin	4472 Feb 27 10:56	8° 58 '30	
min. Earth dist.	4465 Aug 14 15:39	24° 44 '04	29.19234 AU	behind sun end	4472 Feb 27 23:38	8° 59 '39	
direct	4465 Nov 02 19:36	23° 20 '40		max. Earth dist.	4472 Feb 27 19:59	8° 59 '16	31.12351 AU
				desc. node	4472 Mar 27 12:36	10° 02 '35	
conjunction	4466 Feb 14 07:47	25° 49 '27	0°20'31	retrograde	4472 Jun 11 02:48	11° 29 '29	
minimum elong	4466 Feb 14 07:47	25° 49 '27	0°20'32	opposition	4472 Aug 30 08:10	10° 05 '59	0°-1'-32
max. Earth dist.	4466 Feb 14 05:19	25° 49 '14	31.18667 AU	min. Earth dist.	4472 Aug 30 04:01	10° 06 '16	29.11940 AU
retrograde	4466 May 29 06:15	28° 19 '00		direct	4472 Nov 18 02:31	8° 42 '31	
opposition	4466 Aug 17 02:45	26° 56 '01	0°20'08				
min. Earth dist.	4466 Aug 17 05:09	26° 55 '51	29.18093 AU	conjunction	4473 Mar 01 03:03	11° 10 '57	0°-3'-12
direct	4466 Nov 05 07:19	25° 32 '28		minimum elong	4473 Mar 01 03:02	11° 10 '57	0°03'13
				behind sun begin	4473 Feb 28 20:40	11° 10 '23	
conjunction	4467 Feb 16 17:19	28° 01 '10	0°17'12	behind sun end	4473 Mar 01 09:24	11° 11 '32	
minimum elong	4467 Feb 16 17:19	28° 01 '10	0°17'12	max. Earth dist.	4473 Mar 01 07:26	11° 11 '20	31.11528 AU
max. Earth dist.	4467 Feb 16 15:43	28° 01 '01	31.17503 AU	retrograde	4473 Jun 13 14:49	13° 41 '33	
	4467 Apr 18 04:10	0° 00 '		opposition	4473 Sep 01 21:17	12° 18 '01	0°-5'-11
retrograde	4467 May 31 17:02	0° 30 '49		min. Earth dist.	4473 Sep 01 16:58	12° 18 '19	29.11123 AU
	4467 Jul 15 20:58	30° 00 '		direct	4473 Nov 20 14:36	10° 54 '37	
opposition	4467 Aug 19 15:35	29° 07 '43	0°16'34				
min. Earth dist.	4467 Aug 19 16:11	29° 07 '40	29.16904 AU	conjunction	4474 Mar 03 12:52	13° 23 '03	0°-6'-36
direct	4467 Nov 07 20:31	27° 44 '09		minimum elong	4474 Mar 03 12:52	13° 23 '03	0°06'37
	4468 Feb 13 12:00	0° 00 '		behind sun begin	4474 Mar 03 06:51	13° 22 '30	
				behind sun end	4474 Mar 03 18:52	13° 23 '35	
conjunction	4468 Feb 19 02:52	0° 12 '46	0°13'52	max. Earth dist.	4474 Mar 03 17:29	13° 23 '27	31.10719 AU
minimum elong	4468 Feb 19 02:52	0° 12 '46	0°13'52	retrograde	4474 Jun 16 05:11	15° 53 '49	
behind sun begin	4468 Feb 18 23:25	0° 12 '27		opposition	4474 Sep 04 10:21	14° 30 '15	0°-8'-49
behind sun end	4468 Feb 19 06:19	0° 13 '05		min. Earth dist.	4474 Sep 04 04:24	14° 30 '39	29.10301 AU
max. Earth dist.	4468 Feb 19 01:40	0° 12 '40	31.16311 AU	direct	4474 Nov 23 02:02	13° 06 '54	
retrograde	4468 Jun 02 04:18	2° 42 '32					
opposition	4468 Aug 21 04:26	1° 19 '19	0°12'59	conjunction	4475 Mar 05 22:49	15° 35 '20	0°-9'-59
min. Earth dist.	4468 Aug 21 05:01	1° 19 '17	29.15741 AU	minimum elong	4475 Mar 05 22:49	15° 35 '21	0°10'01
	4468 Oct 24 02:42	30° 00 '		behind sun begin	4475 Mar 05 17:36	15° 34 '52	
direct	4468 Nov 09 07:30	29° 55 '44		behind sun end	4475 Mar 06 04:01	15° 35 '49	
	4468 Nov 25 06:32	0° 00 '		max. Earth dist.	4475 Mar 06 04:20	15° 35 '51	31.09860 AU
				retrograde	4475 Jun 18 17:04	18° 06 '19	
conjunction	4469 Feb 20 12:31	2° 24 '17	0°10'30	opposition	4475 Sep 06 23:35	16° 42 '42	0°-12'-27
minimum elong	4469 Feb 20 12:31	2° 24 '17	0°10'30	min. Earth dist.	4475 Sep 06 18:09	16° 43 '04	29.09408 AU
behind sun begin	4469 Feb 20 07:29	2° 23 '50		direct	4475 Nov 25 13:14	15° 19 '24	
behind sun end	4469 Feb 20 17:34	2° 24 '45					

conjunction	4476 Mar 07 08:58	17° ✕ 47'50	0°-13'-22	direct	4483 Dec 13 08:45	3° Υ 01'24	
minimum elong	4476 Mar 07 08:58	17° ✕ 47'50	0°13'23				
behind sun begin	4476 Mar 07 05:13	17° ✕ 47'30		conjunction	4484 Mar 24 18:49	5° Υ 29'39	0°-39'-22
behind sun end	4476 Mar 07 12:43	17° ✕ 48'11		minimum elong	4484 Mar 24 18:49	5° Υ 29'39	0°39'23
max. Earth dist.	4476 Mar 07 15:11	17° ✕ 48'25	31.08922 AU	max. Earth dist.	4484 Mar 25 06:55	5° Υ 30'47	30.99846 AU
retrograde	4476 Jun 20 05:37	20° ✕ 18'59		retrograde	4484 Jul 08 07:22	8° Υ 01'59	
opposition	4476 Sep 08 12:35	18° ✕ 55'20	0°-16'-4	opposition	4484 Sep 26 21:23	6° Υ 37'39	0°-43'-44
min. Earth dist.	4476 Sep 08 05:39	18° ✕ 55'48	29.08409 AU	min. Earth dist.	4484 Sep 26 09:15	6° Υ 38'29	28.99466 AU
direct	4476 Nov 27 02:21	17° ✕ 32'03		direct	4484 Dec 14 19:30	5° Υ 14'24	
conjunction	4477 Mar 09 19:08	20° ✕ 00'29	0°-16'-44	conjunction	4485 Mar 27 05:20	7° Υ 42'39	0°-42'-25
minimum elong	4477 Mar 09 19:08	20° ✕ 00'29	0°16'45	minimum elong	4485 Mar 27 05:20	7° Υ 42'39	0°42'26
max. Earth dist.	4477 Mar 10 01:15	20° ✕ 01'03	31.07858 AU	max. Earth dist.	4485 Mar 27 18:35	7° Υ 43'55	30.99063 AU
retrograde	4477 Jun 22 18:31	22° ✕ 31'48		retrograde	4485 Jul 10 21:29	10° Υ 15'09	
opposition	4477 Sep 11 01:56	21° ✕ 08'04	0°-19'-40	opposition	4485 Sep 29 10:26	8° Υ 50'48	0°-46'-57
min. Earth dist.	4477 Sep 10 19:22	21° ✕ 08'31	29.07293 AU	min. Earth dist.	4485 Sep 28 20:30	8° Υ 51'45	28.98717 AU
direct	4477 Nov 29 13:40	19° ✕ 44'49		direct	4485 Dec 17 08:45	7° Υ 27'35	
conjunction	4478 Mar 12 05:21	22° ✕ 13'13	0°-20'-4	conjunction	4486 Mar 29 15:48	9° Υ 55'51	0°-45'-24
minimum elong	4478 Mar 12 05:21	22° ✕ 13'13	0°20'05	minimum elong	4486 Mar 29 15:48	9° Υ 55'51	0°45'25
max. Earth dist.	4478 Mar 12 12:47	22° ✕ 13'55	31.06685 AU	max. Earth dist.	4486 Mar 30 05:14	9° Υ 57'07	30.98335 AU
retrograde	4478 Jun 25 05:26	24° ✕ 44'41		retrograde	4486 Jul 13 11:34	12° Υ 28'31	
opposition	4478 Sep 13 15:07	23° ✕ 20'52	0°-23'-14	opposition	4486 Oct 01 23:40	11° Υ 04'07	0°-50'-7
min. Earth dist.	4478 Sep 13 07:16	23° ✕ 21'24	29.06061 AU	min. Earth dist.	4486 Oct 01 10:02	11° Υ 05'03	28.98016 AU
direct	4478 Dec 02 02:38	21° ✕ 57'36		direct	4486 Dec 19 20:02	9° Υ 40'57	
conjunction	4479 Mar 14 15:31	24° ✕ 25'58	0°-23'-23	conjunction	4487 Apr 01 02:40	12° Υ 09'15	0°-48'-20
minimum elong	4479 Mar 14 15:31	24° ✕ 25'58	0°23'24	minimum elong	4487 Apr 01 02:40	12° Υ 09'15	0°48'21
max. Earth dist.	4479 Mar 14 22:35	24° ✕ 26'37	31.05420 AU	max. Earth dist.	4487 Apr 01 17:31	12° Υ 10'39	30.97634 AU
retrograde	4479 Jun 27 17:15	26° ✕ 57'34		retrograde	4487 Jul 15 23:14	14° Υ 42'04	
opposition	4479 Sep 16 04:09	25° ✕ 33'38	0°-26'-45	opposition	4487 Oct 04 12:36	13° Υ 17'39	0°-53'-13
min. Earth dist.	4479 Sep 15 20:08	25° ✕ 34'11	29.04784 AU	min. Earth dist.	4487 Oct 03 21:47	13° Υ 18'40	28.97301 AU
direct	4479 Dec 04 12:50	24° ✕ 10'21		direct	4487 Dec 22 08:38	11° Υ 54'31	
conjunction	4480 Mar 16 01:48	26° ✕ 38'40	0°-26'-40	conjunction	4488 Apr 02 13:32	14° Υ 22'49	0°-51'-11
minimum elong	4480 Mar 16 01:48	26° ✕ 38'40	0°26'41	minimum elong	4488 Apr 02 13:32	14° Υ 22'49	0°51'12
max. Earth dist.	4480 Mar 16 10:44	26° ✕ 39'31	31.04131 AU	max. Earth dist.	4488 Apr 03 03:47	14° Υ 24'10	30.96894 AU
retrograde	4480 Jun 29 03:53	29° ✕ 10'24		retrograde	4488 Jul 17 12:29	16° Υ 55'48	
opposition	4480 Sep 17 17:14	27° ✕ 46'22	0°-30'-15	min. Earth dist.	4488 Oct 05 11:07	15° Υ 32'21	28.96537 AU
min. Earth dist.	4480 Sep 17 08:23	27° ✕ 46'59	29.03508 AU	opposition	4488 Oct 06 01:51	15° Υ 31'21	0°-56'-14
direct	4480 Dec 06 00:17	26° ✕ 23'05		direct	4488 Dec 23 19:24	14° Υ 08'14	
conjunction	4481 Mar 18 11:51	28° ✕ 51'21	0°-29'-54	conjunction	4489 Apr 05 00:34	16° Υ 36'34	0°-53'-58
minimum elong	4481 Mar 18 11:51	28° ✕ 51'21	0°29'56	minimum elong	4489 Apr 05 00:34	16° Υ 36'33	0°53'59
max. Earth dist.	4481 Mar 18 20:44	28° ✕ 52'11	31.02890 AU	max. Earth dist.	4489 Apr 05 16:17	16° Υ 38'03	30.96073 AU
retrograde	4481 Apr 18 17:51	0° Υ		retrograde	4489 Jul 20 00:12	19° Υ 09'41	
retrograde	4481 Jul 01 17:13	1° Υ 23'13		opposition	4489 Oct 08 15:07	17° Υ 45'10	0°-59'-9
opposition	4481 Sep 19 17:05	30° ℞		min. Earth dist.	4489 Oct 07 23:59	17° Υ 46'12	28.95662 AU
opposition	4481 Sep 20 06:19	29° ✕ 59'06	0°-33'-41	direct	4489 Dec 26 07:43	16° Υ 22'04	
min. Earth dist.	4481 Sep 19 20:11	29° ✕ 59'47	29.02322 AU				
direct	4481 Dec 08 10:30	28° ✕ 35'47		conjunction	4490 Apr 07 11:42	18° Υ 50'23	0°-56'-40
	4482 Feb 19 21:10	0° Υ		minimum elong	4490 Apr 07 11:42	18° Υ 50'23	0°56'40
conjunction	4482 Mar 20 22:09	1° Υ 04'02	0°-33'-6	max. Earth dist.	4490 Apr 08 02:43	18° Υ 51'48	30.95149 AU
minimum elong	4482 Mar 20 22:09	1° Υ 04'02	0°33'07	retrograde	4490 Jul 22 13:46	21° Υ 23'38	
max. Earth dist.	4482 Mar 21 08:47	1° Υ 05'02	31.01748 AU	opposition	4490 Oct 11 04:16	19° Υ 59'03	-1°-2'00
retrograde	4482 Jul 04 04:58	3° Υ 36'03		min. Earth dist.	4490 Oct 10 12:38	20° Υ 00'07	28.94690 AU
opposition	4482 Sep 22 19:22	2° Υ 11'51	0°-37'-5	direct	4490 Dec 28 18:26	18° Υ 35'56	
min. Earth dist.	4482 Sep 22 08:51	2° Υ 12'34	29.01247 AU	conjunction	4491 Apr 09 22:58	21° Υ 04'14	0°-59'-17
direct	4482 Dec 10 22:05	0° Υ 48'33		minimum elong	4491 Apr 09 22:58	21° Υ 04'14	0°59'18
conjunction	4483 Mar 23 08:26	3° Υ 16'47	0°-36'-16	max. Earth dist.	4491 Apr 10 15:01	21° Υ 05'45	30.94118 AU
minimum elong	4483 Mar 23 08:26	3° Υ 16'47	0°36'17	retrograde	4491 Jul 25 01:04	23° Υ 37'35	
max. Earth dist.	4483 Mar 23 19:29	3° Υ 17'49	31.00745 AU	opposition	4491 Oct 13 17:26	22° Υ 12'55	-1°-4'-45
retrograde	4483 Jul 06 19:05	5° Υ 48'57		min. Earth dist.	4491 Oct 13 02:03	22° Υ 13'59	28.93622 AU
opposition	4483 Sep 25 08:20	4° Υ 24'41	0°-40'-26	direct	4491 Dec 31 06:08	20° Υ 49'46	
min. Earth dist.	4483 Sep 24 20:00	4° Υ 25'32	29.00304 AU	conjunction	4492 Apr 11 10:07	23° Υ 18'03	-1°-1'-48

minimum elong	4492 Apr 11 10:07	23° Υ 18'03	1°01'49	conjunction	4500 Apr 30 06:15	11° \mathcal{B} 10'54	-1°-18'-25
max. Earth dist.	4492 Apr 12 02:08	23° Υ 19'34	30.93036 AU	minimum elong	4500 Apr 30 06:15	11° \mathcal{B} 10'54	1°18'26
retrograde	4492 Jul 26 14:52	25° Υ 51'30		max. Earth dist.	4500 May 01 03:11	11° \mathcal{B} 12'53	30.87197 AU
opposition	4492 Oct 15 06:23	24° Υ 26'44	-1°-7'-24	retrograde	4500 Aug 14 23:55	13° \mathcal{B} 45'18	
min. Earth dist.	4492 Oct 14 13:41	24° Υ 27'53	28.92540 AU	opposition	4500 Nov 03 13:34	12° \mathcal{B} 20'18	-1°-24'-43
direct	4493 Jan 01 17:03	23° Υ 03'33		min. Earth dist.	4500 Nov 02 18:06	12° \mathcal{B} 21'39	28.87025 AU
				direct	4501 Jan 20 14:24	10° \mathcal{B} 57'13	
conjunction	4493 Apr 13 21:21	25° Υ 31'50	-1°-4'-14				
minimum elong	4493 Apr 13 21:21	25° Υ 31'50	1°04'16	conjunction	4501 May 02 18:23	13° \mathcal{B} 25'49	-1°-19'-59
max. Earth dist.	4493 Apr 14 14:06	25° Υ 33'25	30.91959 AU	minimum elong	4501 May 02 18:23	13° \mathcal{B} 25'49	1°20'01
retrograde	4493 Jul 29 03:19	28° Υ 05'23		max. Earth dist.	4501 May 03 14:51	13° \mathcal{B} 27'45	30.86685 AU
opposition	4493 Oct 17 19:30	26° Υ 40'32	-1°-9'-58		4501 Jun 16 05:34	15° \mathcal{B}	
min. Earth dist.	4493 Oct 17 03:13	26° Υ 41'40	28.91504 AU	retrograde	4501 Aug 17 14:38	16° \mathcal{B} 00'19	
direct	4494 Jan 04 04:07	25° Υ 17'20			4501 Oct 22 00:52	15° \mathcal{R} \mathcal{B}	
conjunction	4494 Apr 16 08:37	27° Υ 45'36	-1°-6'-35	min. Earth dist.	4501 Nov 05 06:10	14° \mathcal{B} 36'43	28.86475 AU
minimum elong	4494 Apr 16 08:36	27° Υ 45'36	1°06'36	opposition	4501 Nov 06 02:27	14° \mathcal{B} 35'18	-1°-26'-20
max. Earth dist.	4494 Apr 17 02:23	27° Υ 47'17	30.90969 AU	direct	4502 Jan 23 00:46	13° \mathcal{B} 12'13	
	4494 Jun 27 06:00	0° \mathcal{B}			4502 Apr 17 02:39	15° \mathcal{B}	
retrograde	4494 Jul 31 17:42	0° \mathcal{B} 19'16		conjunction	4502 May 05 06:39	15° \mathcal{B} 40'52	-1°-21'-27
	4494 Sep 04 22:47	30° \mathcal{R} Υ		minimum elong	4502 May 05 06:39	15° \mathcal{B} 40'52	1°21'27
opposition	4494 Oct 20 08:23	28° Υ 54'21	-1°-12'-25	max. Earth dist.	4502 May 06 03:10	15° \mathcal{B} 42'48	30.86070 AU
min. Earth dist.	4494 Oct 19 14:28	28° Υ 55'35	28.90566 AU	retrograde	4502 Aug 20 02:49	18° \mathcal{B} 15'27	
direct	4495 Jan 06 17:20	27° Υ 31'07		opposition	4502 Nov 08 15:26	16° \mathcal{B} 50'24	-1°-27'-49
				min. Earth dist.	4502 Nov 07 20:15	16° \mathcal{B} 51'44	28.85808 AU
conjunction	4495 Apr 18 19:57	29° Υ 59'25	-1°-8'-49	direct	4503 Jan 25 12:01	15° \mathcal{B} 27'16	
minimum elong	4495 Apr 18 19:57	29° Υ 59'25	1°08'51				
	4495 Apr 19 02:03	0° \mathcal{B}		conjunction	4503 May 07 19:06	17° \mathcal{B} 55'56	-1°-22'-46
max. Earth dist.	4495 Apr 19 13:43	0° \mathcal{B} 01'06	30.90079 AU	minimum elong	4503 May 07 19:06	17° \mathcal{B} 55'56	1°22'48
retrograde	4495 Aug 03 07:38	2° \mathcal{B} 33'12		max. Earth dist.	4503 May 08 15:46	17° \mathcal{B} 57'54	30.85355 AU
opposition	4495 Oct 22 21:13	1° \mathcal{B} 08'14	-1°-14'-45	retrograde	4503 Aug 22 16:54	20° \mathcal{B} 30'34	
min. Earth dist.	4495 Oct 22 03:41	1° \mathcal{B} 09'26	28.89750 AU	min. Earth dist.	4503 Nov 10 08:00	19° \mathcal{B} 06'51	28.85040 AU
	4495 Dec 10 00:06	30° \mathcal{R} Υ		opposition	4503 Nov 11 04:03	19° \mathcal{B} 05'27	-1°-29'-11
direct	4496 Jan 09 04:28	29° Υ 45'00		direct	4504 Jan 28 01:04	17° \mathcal{B} 42'17	
	4496 Feb 07 18:00	0° \mathcal{B}					
conjunction	4496 Apr 20 07:29	2° \mathcal{B} 13'21	-1°-10'-57	conjunction	4504 May 09 07:24	20° \mathcal{B} 10'58	-1°-23'-59
minimum elong	4496 Apr 20 07:29	2° \mathcal{B} 13'21	1°10'58	minimum elong	4504 May 09 07:24	20° \mathcal{B} 10'58	1°23'59
max. Earth dist.	4496 Apr 21 02:44	2° \mathcal{B} 15'10	30.89323 AU	max. Earth dist.	4504 May 10 03:28	20° \mathcal{B} 12'52	30.84549 AU
retrograde	4496 Aug 04 20:08	4° \mathcal{B} 47'14		retrograde	4504 Aug 24 06:16	22° \mathcal{B} 45'37	
opposition	4496 Oct 24 10:02	3° \mathcal{B} 22'15	-1°-16'-59	opposition	4504 Nov 12 16:54	21° \mathcal{B} 20'26	-1°-30'-24
min. Earth dist.	4496 Oct 23 15:04	3° \mathcal{B} 23'33	28.89052 AU	min. Earth dist.	4504 Nov 11 21:48	21° \mathcal{B} 21'46	28.84224 AU
direct	4497 Jan 10 17:08	1° \mathcal{B} 59'02		direct	4505 Jan 29 12:03	19° \mathcal{B} 57'11	
conjunction	4497 Apr 22 18:47	4° \mathcal{B} 27'25	-1°-12'-59	conjunction	4505 May 11 19:44	22° \mathcal{B} 25'52	-1°-25'-3
minimum elong	4497 Apr 22 18:47	4° \mathcal{B} 27'25	1°13'01	minimum elong	4505 May 11 19:44	22° \mathcal{B} 25'52	1°25'05
max. Earth dist.	4497 Apr 23 13:40	4° \mathcal{B} 29'12	30.88685 AU	max. Earth dist.	4505 May 12 16:51	22° \mathcal{B} 27'52	30.83733 AU
retrograde	4497 Aug 07 10:23	7° \mathcal{B} 01'26		retrograde	4505 Aug 26 19:37	25° \mathcal{B} 00'32	
opposition	4497 Oct 26 23:01	5° \mathcal{B} 36'26	-1°-19'-6	min. Earth dist.	4505 Nov 14 09:26	23° \mathcal{B} 36'41	28.83416 AU
min. Earth dist.	4497 Oct 26 03:59	5° \mathcal{B} 37'45	28.88477 AU	opposition	4505 Nov 15 05:30	23° \mathcal{B} 35'17	-1°-31'-29
direct	4498 Jan 13 04:14	4° \mathcal{B} 13'16		direct	4506 Feb 01 01:34	22° \mathcal{B} 11'58	
conjunction	4498 Apr 25 06:34	6° \mathcal{B} 41'42	-1°-14'-55	conjunction	4506 May 14 08:06	24° \mathcal{B} 40'40	-1°-26'00
minimum elong	4498 Apr 25 06:34	6° \mathcal{B} 41'42	1°14'56	minimum elong	4506 May 14 08:06	24° \mathcal{B} 40'40	1°26'01
max. Earth dist.	4498 Apr 26 03:05	6° \mathcal{B} 43'38	30.88147 AU	max. Earth dist.	4506 May 15 04:24	24° \mathcal{B} 42'35	30.82953 AU
retrograde	4498 Aug 09 22:59	9° \mathcal{B} 15'50		retrograde	4506 Aug 29 10:26	27° \mathcal{B} 15'20	
opposition	4498 Oct 29 11:47	7° \mathcal{B} 50'50	-1°-21'-6	opposition	4506 Nov 17 18:00	25° \mathcal{B} 50'01	-1°-32'-26
min. Earth dist.	4498 Oct 28 16:17	7° \mathcal{B} 52'11	28.87974 AU	min. Earth dist.	4506 Nov 16 22:18	25° \mathcal{B} 51'23	28.82689 AU
direct	4499 Jan 15 16:34	6° \mathcal{B} 27'42		direct	4507 Feb 03 13:31	24° \mathcal{B} 26'39	
conjunction	4499 Apr 27 18:19	8° \mathcal{B} 56'11	-1°-16'-43	conjunction	4507 May 16 20:40	26° \mathcal{B} 55'21	-1°-26'-49
minimum elong	4499 Apr 27 18:19	8° \mathcal{B} 56'11	1°16'45	minimum elong	4507 May 16 20:40	26° \mathcal{B} 55'21	1°26'51
max. Earth dist.	4499 Apr 28 14:14	8° \mathcal{B} 58'04	30.87674 AU	max. Earth dist.	4507 May 17 18:21	26° \mathcal{B} 57'25	30.82268 AU
retrograde	4499 Aug 12 12:38	11° \mathcal{B} 30'28		retrograde	4507 Aug 31 22:44	29° \mathcal{B} 30'03	
min. Earth dist.	4499 Oct 31 04:45	10° \mathcal{B} 06'50	28.87516 AU	min. Earth dist.	4507 Nov 19 10:17	28° \mathcal{B} 06'05	28.82059 AU
opposition	4499 Nov 01 00:39	10° \mathcal{B} 05'28	-1°-22'-58	opposition	4507 Nov 20 06:26	28° \mathcal{B} 04'40	-1°-33'-14
direct	4500 Jan 18 03:11	8° \mathcal{B} 42'21		direct	4508 Feb 06 02:47	26° \mathcal{B} 41'16	

conjunction	4508 May 18 09:00	29°♄10'00	-1°-27'-31	conjunction	4516 Jun 05 16:55	17°♊10'46	-1°-28'-8
minimum elong	4508 May 18 09:00	29°♄10'00	1°27'31	minimum elong	4516 Jun 05 16:55	17°♊10'46	1°28'09
max. Earth dist.	4508 May 19 06:02	29°♄11'59	30.81707 AU	max. Earth dist.	4516 Jun 06 14:05	17°♊12'46	30.80059 AU
	4508 Jun 09 18:38	0°♊		retrograde	4516 Sep 20 23:17	19°♊45'41	
retrograde	4508 Sep 02 12:28	1°♊44'43		opposition	4516 Dec 09 20:59	18°♊20'24	-1°-33'-58
opposition	4508 Nov 21 18:53	0°♊19'19	-1°-33'-54	min. Earth dist.	4516 Dec 09 01:56	18°♊21'44	28.79987 AU
min. Earth dist.	4508 Nov 20 22:19	0°♊20'45	28.81575 AU	direct	4517 Feb 25 11:48	16°♊56'51	
	4508 Dec 03 09:51	30°♄					
direct	4509 Feb 07 13:52	28°♄55'52		conjunction	4517 Jun 08 06:12	19°♊26'10	-1°-27'-36
	4509 Apr 11 08:04	0°♊		minimum elong	4517 Jun 08 06:13	19°♊26'10	1°27'38
				max. Earth dist.	4517 Jun 09 02:03	19°♊28'03	30.79745 AU
conjunction	4509 May 20 21:37	1°♊24'39	-1°-28'-4	retrograde	4517 Sep 23 13:43	22°♊01'03	
minimum elong	4509 May 20 21:37	1°♊24'39	1°28'06	opposition	4517 Dec 12 08:58	20°♊35'43	-1°-33'-20
max. Earth dist.	4509 May 21 19:47	1°♊26'45	30.81286 AU	min. Earth dist.	4517 Dec 11 14:12	20°♊37'02	28.79680 AU
retrograde	4509 Sep 05 00:11	3°♊59'24		direct	4518 Feb 27 23:23	19°♊12'06	
min. Earth dist.	4509 Nov 23 10:56	2°♊35'24	28.81226 AU				
opposition	4509 Nov 24 07:16	2°♊33'59	-1°-34'-25	conjunction	4518 Jun 10 19:39	21°♊41'29	-1°-26'-56
direct	4510 Feb 10 01:38	1°♊10'32		minimum elong	4518 Jun 10 19:39	21°♊41'29	1°26'57
				max. Earth dist.	4518 Jun 11 16:10	21°♊43'25	30.79447 AU
conjunction	4510 May 23 10:16	3°♊39'22	-1°-28'-29	retrograde	4518 Sep 26 02:13	24°♊16'17	
minimum elong	4510 May 23 10:16	3°♊39'22	1°28'30	opposition	4518 Dec 14 20:54	22°♊50'56	-1°-32'-34
max. Earth dist.	4510 May 24 08:04	3°♊41'26	30.81014 AU	min. Earth dist.	4518 Dec 14 02:47	22°♊52'13	28.79408 AU
retrograde	4510 Sep 07 14:49	6°♊14'10		direct	4519 Mar 02 12:18	21°♊27'16	
opposition	4510 Nov 26 19:35	4°♊48'46	-1°-34'-47				
min. Earth dist.	4510 Nov 25 22:20	4°♊50'15	28.81012 AU	conjunction	4519 Jun 13 08:58	23°♊56'40	-1°-26'-9
direct	4511 Feb 12 12:25	3°♊25'18		minimum elong	4519 Jun 13 08:58	23°♊56'40	1°26'10
				max. Earth dist.	4519 Jun 14 04:38	23°♊58'31	30.79225 AU
conjunction	4511 May 25 23:04	5°♊54'13	-1°-28'-46	retrograde	4519 Sep 28 16:17	26°♊31'25	
minimum elong	4511 May 25 23:04	5°♊54'13	1°28'48	opposition	4519 Dec 17 08:36	25°♊06'04	-1°-31'-38
max. Earth dist.	4511 May 26 21:10	5°♊56'18	30.80841 AU	min. Earth dist.	4519 Dec 16 13:53	25°♊07'23	28.79240 AU
retrograde	4511 Sep 10 02:15	8°♊29'03		direct	4520 Mar 03 23:59	23°♊42'19	
min. Earth dist.	4511 Nov 28 11:35	7°♊05'07	28.80883 AU				
opposition	4511 Nov 29 07:51	7°♊03'41	-1°-35'-1	conjunction	4520 Jun 14 22:21	26°♊11'46	-1°-25'-13
direct	4512 Feb 14 23:05	5°♊40'15		minimum elong	4520 Jun 14 22:21	26°♊11'46	1°25'14
				max. Earth dist.	4520 Jun 15 18:14	26°♊13'38	30.79112 AU
conjunction	4512 May 27 12:00	8°♊09'14	-1°-28'-54	retrograde	4520 Sep 30 02:49	28°♊46'28	
minimum elong	4512 May 27 12:00	8°♊09'14	1°28'55	opposition	4520 Dec 18 20:26	27°♊21'06	-1°-30'-35
max. Earth dist.	4512 May 28 10:20	8°♊11'21	30.80753 AU	min. Earth dist.	4520 Dec 18 02:41	27°♊22'21	28.79201 AU
retrograde	4512 Sep 11 16:14	10°♊44'08		direct	4521 Mar 06 11:01	25°♊57'19	
opposition	4512 Nov 30 20:04	9°♊18'48	-1°-35'-6				
min. Earth dist.	4512 Nov 29 23:00	9°♊20'17	28.80807 AU	conjunction	4521 Jun 17 11:43	28°♊26'48	-1°-24'-10
direct	4513 Feb 16 10:59	7°♊55'22		minimum elong	4521 Jun 17 11:43	28°♊26'48	1°24'12
				max. Earth dist.	4521 Jun 18 07:39	28°♊28'41	30.79159 AU
conjunction	4513 May 30 00:57	10°♊24'27	-1°-28'-55		4521 Jul 31 16:29	0°♄	
minimum elong	4513 May 30 00:57	10°♊24'27	1°28'57	retrograde	4521 Oct 02 16:08	1°♄01'26	
max. Earth dist.	4513 May 30 22:34	10°♊26'30	30.80670 AU		4521 Dec 07 00:23	30°♄♊	
retrograde	4513 Sep 14 05:35	12°♊59'24		opposition	4521 Dec 21 08:04	29°♊36'06	-1°-29'-23
opposition	4513 Dec 03 08:28	11°♊34'06	-1°-35'-2	min. Earth dist.	4521 Dec 20 13:28	29°♊37'25	28.79315 AU
min. Earth dist.	4513 Dec 02 12:43	11°♊35'29	28.80715 AU	direct	4522 Mar 08 22:36	28°♊12'17	
direct	4514 Feb 18 21:04	10°♊10'40			4522 Jun 01 07:19	0°♄	
conjunction	4514 Jun 01 14:19	12°♊39'50	-1°-28'-47	conjunction	4522 Jun 20 01:13	0°♄41'50	-1°-22'-59
minimum elong	4514 Jun 01 14:19	12°♊39'50	1°28'48	minimum elong	4522 Jun 20 01:13	0°♄41'50	1°23'00
max. Earth dist.	4514 Jun 02 12:18	12°♊41'55	30.80550 AU	max. Earth dist.	4522 Jun 20 20:35	0°♄43'39	30.79345 AU
retrograde	4514 Sep 16 19:34	15°♊14'47		retrograde	4522 Oct 05 04:18	3°♄16'25	
opposition	4514 Dec 05 20:32	13°♊49'31	-1°-34'-49	opposition	4522 Dec 23 19:43	1°♄51'07	-1°-28'-3
min. Earth dist.	4514 Dec 05 00:25	13°♊50'55	28.80549 AU	min. Earth dist.	4522 Dec 23 02:17	1°♄52'21	28.79580 AU
direct	4515 Feb 21 10:15	12°♊26'03		direct	4523 Mar 11 07:54	0°♄27'16	
conjunction	4515 Jun 04 03:37	14°♊55'18	-1°-28'-31	conjunction	4523 Jun 22 14:53	2°♄56'53	-1°-21'-41
minimum elong	4515 Jun 04 03:37	14°♊55'18	1°28'33	minimum elong	4523 Jun 22 14:53	2°♄56'53	1°21'43
max. Earth dist.	4515 Jun 05 00:02	14°♊57'14	30.80342 AU	max. Earth dist.	4523 Jun 23 10:46	2°♄58'45	30.79687 AU
retrograde	4515 Sep 19 10:46	17°♊30'15		retrograde	4523 Oct 07 17:04	5°♄31'25	
opposition	4515 Dec 08 08:51	16°♊04'58	-1°-34'-28	opposition	4523 Dec 26 07:18	4°♄06'10	-1°-26'-35
min. Earth dist.	4515 Dec 07 13:42	16°♊06'19	28.80303 AU	min. Earth dist.	4523 Dec 25 13:14	4°♄07'27	28.79973 AU
direct	4516 Feb 23 22:16	14°♊41'28		direct	4524 Mar 12 21:00	2°♄42'19	

conjunction	4524 Jun 24 04:18	5° \mathring{U} 12'01	-1°-20'-14	retrograde	4532 Oct 27 13:50	25° \mathring{U} 47'18	
minimum elong	4524 Jun 24 04:18	5° \mathring{U} 12'01	1°20'15	opposition	4533 Jan 14 14:05	24° \mathring{U} 22'23	-1°-7'-42
max. Earth dist.	4524 Jun 24 22:56	5° \mathring{U} 13'46	30.80135 AU	min. Earth dist.	4533 Jan 14 01:34	24° \mathring{U} 23'16	28.83216 AU
retrograde	4524 Oct 09 06:55	7° \mathring{U} 46'31		direct	4533 Apr 02 08:39	22° \mathring{U} 58'10	
opposition	4524 Dec 27 19:00	6° \mathring{U} 21'19	-1°-24'-58				
min. Earth dist.	4524 Dec 27 01:53	6° \mathring{U} 22'32	28.80462 AU	conjunction	4533 Jul 15 09:55	25° \mathring{U} 28'22	-1°-2'-6
direct	4525 Mar 15 07:53	4° \mathring{U} 57'28		minimum elong	4533 Jul 15 09:55	25° \mathring{U} 28'22	1°02'08
				max. Earth dist.	4533 Jul 15 22:37	25° \mathring{U} 29'34	30.83400 AU
conjunction	4525 Jun 26 18:12	7° \mathring{U} 27'15	-1°-18'-40	retrograde	4533 Oct 30 02:16	28° \mathring{U} 01'58	
minimum elong	4525 Jun 26 18:12	7° \mathring{U} 27'15	1°18'43	opposition	4534 Jan 17 01:07	26° \mathring{U} 37'05	-1°-5'-3
max. Earth dist.	4525 Jun 27 13:29	7° \mathring{U} 29'04	30.80645 AU	min. Earth dist.	4534 Jan 16 13:36	26° \mathring{U} 37'54	28.83707 AU
retrograde	4525 Oct 11 19:46	10° \mathring{U} 01'42		direct	4534 Apr 04 19:01	25° \mathring{U} 12'49	
opposition	4525 Dec 30 06:30	8° \mathring{U} 36'35	-1°-23'-14				
min. Earth dist.	4525 Dec 29 13:45	8° \mathring{U} 37'46	28.80965 AU	conjunction	4534 Jul 18 00:00	27° \mathring{U} 43'06	0°-59'-34
direct	4526 Mar 17 20:31	7° \mathring{U} 12'43		minimum elong	4534 Jul 18 00:00	27° \mathring{U} 43'06	0°59'36
				max. Earth dist.	4534 Jul 18 13:16	27° \mathring{U} 44'21	30.83955 AU
conjunction	4526 Jun 29 08:06	9° \mathring{U} 42'35	-1°-16'-59		4534 Sep 30 22:58	0° \mathring{U}	
minimum elong	4526 Jun 29 08:06	9° \mathring{U} 42'35	1°17'00	retrograde	4534 Nov 01 14:18	0° \mathring{U} 16'35	
max. Earth dist.	4526 Jun 30 01:34	9° \mathring{U} 44'14	30.81141 AU		4534 Dec 03 16:27	30° \mathring{R} \mathring{U}	
retrograde	4526 Oct 14 10:46	12° \mathring{U} 16'58		opposition	4535 Jan 19 12:08	28° \mathring{U} 51'46	-1°-2'-18
opposition	4527 Jan 01 18:06	10° \mathring{U} 51'54	-1°-21'-21	min. Earth dist.	4535 Jan 19 00:44	28° \mathring{U} 52'34	28.84319 AU
min. Earth dist.	4527 Jan 01 02:03	10° \mathring{U} 53'02	28.81434 AU	direct	4535 Apr 07 07:09	27° \mathring{U} 27'29	
direct	4527 Mar 20 08:13	9° \mathring{U} 28'01					
				conjunction	4535 Jul 20 13:47	29° \mathring{U} 57'50	0°-56'-57
conjunction	4527 Jul 01 22:08	11° \mathring{U} 57'58	-1°-15'-11	minimum elong	4535 Jul 20 13:48	29° \mathring{U} 57'50	0°56'59
minimum elong	4527 Jul 01 22:08	11° \mathring{U} 57'58	1°15'12	max. Earth dist.	4535 Jul 21 01:31	29° \mathring{U} 58'55	30.84644 AU
max. Earth dist.	4527 Jul 02 15:46	11° \mathring{U} 59'37	30.81559 AU		4535 Jul 21 13:02	0° \mathring{U}	
retrograde	4527 Oct 16 23:42	14° \mathring{U} 32'16		retrograde	4535 Nov 04 04:22	2° \mathring{U} 31'13	
opposition	4528 Jan 04 05:41	13° \mathring{U} 07'14	-1°-19'-22	opposition	4536 Jan 21 23:09	1° \mathring{U} 06'28	0°-59'-27
min. Earth dist.	4528 Jan 03 14:47	13° \mathring{U} 08'17	28.81801 AU	min. Earth dist.	4536 Jan 21 12:06	1° \mathring{U} 07'15	28.85075 AU
direct	4528 Mar 21 21:32	11° \mathring{U} 43'19			4536 Mar 06 23:57	30° \mathring{R} \mathring{U}	
				direct	4536 Apr 08 18:43	29° \mathring{U} 42'10	
conjunction	4528 Jul 03 12:06	14° \mathring{U} 13'19	-1°-13'-16		4536 May 11 06:10	0° \mathring{U}	
minimum elong	4528 Jul 03 12:06	14° \mathring{U} 13'19	1°13'17	conjunction	4536 Jul 22 03:51	2° \mathring{U} 12'37	0°-54'-15
max. Earth dist.	4528 Jul 04 04:05	14° \mathring{U} 14'49	30.81899 AU	minimum elong	4536 Jul 22 03:51	2° \mathring{U} 12'37	0°54'16
retrograde	4528 Oct 18 13:48	16° \mathring{U} 47'31		max. Earth dist.	4536 Jul 22 16:07	2° \mathring{U} 13'45	30.85457 AU
opposition	4529 Jan 05 17:07	15° \mathring{U} 22'31	-1°-17'-15	retrograde	4536 Nov 05 16:58	4° \mathring{U} 45'53	
min. Earth dist.	4529 Jan 05 02:13	15° \mathring{U} 23'34	28.82099 AU	opposition	4537 Jan 23 10:06	3° \mathring{U} 21'14	0°-56'-31
direct	4529 Mar 24 09:53	13° \mathring{U} 58'32		min. Earth dist.	4537 Jan 23 00:03	3° \mathring{U} 21'56	28.85928 AU
				direct	4537 Apr 11 07:53	1° \mathring{U} 56'57	
conjunction	4529 Jul 06 02:06	16° \mathring{U} 28'35	-1°-11'-14				
minimum elong	4529 Jul 06 02:06	16° \mathring{U} 28'35	1°11'16	conjunction	4537 Jul 24 17:51	4° \mathring{U} 27'29	0°-51'-28
max. Earth dist.	4529 Jul 06 17:42	16° \mathring{U} 30'03	30.82162 AU	minimum elong	4537 Jul 24 17:51	4° \mathring{U} 27'29	0°51'29
retrograde	4529 Oct 21 01:17	19° \mathring{U} 02'39		max. Earth dist.	4537 Jul 25 04:33	4° \mathring{U} 28'28	30.86356 AU
opposition	4530 Jan 08 04:35	17° \mathring{U} 37'40	-1°-15'-2	retrograde	4537 Nov 08 06:58	7° \mathring{U} 00'40	
min. Earth dist.	4530 Jan 07 15:17	17° \mathring{U} 38'37	28.82336 AU	opposition	4538 Jan 25 21:00	5° \mathring{U} 36'06	0°-53'-29
direct	4530 Mar 26 21:33	16° \mathring{U} 13'39		min. Earth dist.	4538 Jan 25 10:59	5° \mathring{U} 36'48	28.86834 AU
				direct	4538 Apr 13 20:04	4° \mathring{U} 11'49	
conjunction	4530 Jul 08 16:11	18° \mathring{U} 43'43	-1°-9'-6				
minimum elong	4530 Jul 08 16:12	18° \mathring{U} 43'43	1°09'07	conjunction	4538 Jul 27 08:05	6° \mathring{U} 42'26	0°-48'-35
max. Earth dist.	4530 Jul 09 07:01	18° \mathring{U} 45'06	30.82403 AU	minimum elong	4538 Jul 27 08:05	6° \mathring{U} 42'26	0°48'36
retrograde	4530 Oct 23 14:51	21° \mathring{U} 17'39		max. Earth dist.	4538 Jul 27 18:22	6° \mathring{U} 43'24	30.87247 AU
opposition	4531 Jan 10 15:41	19° \mathring{U} 52'42	-1°-12'-42	retrograde	4538 Nov 10 19:19	9° \mathring{U} 15'31	
min. Earth dist.	4531 Jan 10 02:05	19° \mathring{U} 53'40	28.82571 AU	opposition	4539 Jan 28 07:56	7° \mathring{U} 51'02	0°-50'-22
direct	4531 Mar 29 09:40	18° \mathring{U} 28'36		min. Earth dist.	4539 Jan 27 23:44	7° \mathring{U} 51'37	28.87704 AU
				direct	4539 Apr 16 07:47	6° \mathring{U} 26'46	
conjunction	4531 Jul 11 06:08	20° \mathring{U} 58'43	-1°-6'-52				
minimum elong	4531 Jul 11 06:09	20° \mathring{U} 58'43	1°06'54	conjunction	4539 Jul 29 22:18	8° \mathring{U} 57'27	0°-45'-39
max. Earth dist.	4531 Jul 11 20:05	21° \mathring{U} 00'01	30.82651 AU	minimum elong	4539 Jul 29 22:18	8° \mathring{U} 57'27	0°45'40
retrograde	4531 Oct 26 02:08	23° \mathring{U} 32'33		max. Earth dist.	4539 Jul 30 07:19	8° \mathring{U} 58'17	30.88093 AU
opposition	4532 Jan 13 02:59	22° \mathring{U} 07'36	-1°-10'-15	retrograde	4539 Nov 13 09:47	11° \mathring{U} 30'23	
min. Earth dist.	4532 Jan 12 14:53	22° \mathring{U} 08'27	28.82852 AU	opposition	4540 Jan 30 18:51	10° \mathring{U} 05'59	0°-47'-11
direct	4532 Mar 30 19:27	20° \mathring{U} 43'26		min. Earth dist.	4540 Jan 30 10:35	10° \mathring{U} 06'34	28.88498 AU
				direct	4540 Apr 17 20:27	8° \mathring{U} 41'41	
conjunction	4532 Jul 12 20:01	23° \mathring{U} 13'35	-1°-4'-32				
minimum elong	4532 Jul 12 20:01	23° \mathring{U} 13'35	1°04'33	conjunction	4540 Jul 31 12:23	11° \mathring{U} 12'25	0°-42'-38
max. Earth dist.	4532 Jul 13 10:09	23° \mathring{U} 14'55	30.82978 AU				




























































































































minimum elong	4540 Jul 31 12:23	11° Ω 12'25	0°42'40	minimum elong	4548 Aug 19 03:50	29° Ω 05'33	0°16'50
max. Earth dist.	4540 Jul 31 20:11	11° Ω 13'08	30.88833 AU	max. Earth dist.	4548 Aug 19 05:29	29° Ω 05'42	30.94395 AU
retrograde	4540 Nov 14 20:39	13° Ω 45'13			4548 Sep 13 01:53	0° Υ	
opposition	4541 Feb 01 05:54	12° Ω 20'52	0°-43'-56	retrograde	4548 Dec 02 19:22	1° Υ 37'00	
min. Earth dist.	4541 Jan 31 23:35	12° Ω 21'19	28.89190 AU	opposition	4549 Feb 18 18:21	0° Υ 12'57	0°-16'-9
direct	4541 Apr 20 06:59	10° Ω 56'31		min. Earth dist.	4549 Feb 18 16:18	0° Υ 13'06	28.94942 AU
					4549 Feb 26 10:04	30° \Re Ω	
conjunction	4541 Aug 03 02:41	13° Ω 27'16	0°-39'-34	direct	4549 May 08 08:11	28° Ω 48'11	
minimum elong	4541 Aug 03 02:41	13° Ω 27'16	0°39'36		4549 Jul 15 10:37	0° Υ	
max. Earth dist.	4541 Aug 03 09:54	13° Ω 27'56	30.89485 AU				
	4541 Sep 16 12:04	15° Ω		conjunction	4549 Aug 21 17:40	1° Υ 19'11	0°-13'-26
retrograde	4541 Nov 17 07:58	15° Ω 59'54		minimum elong	4549 Aug 21 17:40	1° Υ 19'11	0°13'28
	4542 Jan 20 02:29	15° \Re Ω		behind sun begin	4549 Aug 21 14:07	1° Υ 18'52	
opposition	4542 Feb 03 16:34	14° Ω 35'35	0°-40'-38	behind sun end	4549 Aug 21 21:14	1° Υ 19'29	
min. Earth dist.	4542 Feb 03 10:24	14° Ω 36'01	28.89788 AU	max. Earth dist.	4549 Aug 21 18:35	1° Υ 19'15	30.95510 AU
direct	4542 Apr 22 20:12	13° Ω 11'10		retrograde	4549 Dec 05 06:15	3° Υ 50'30	
	4542 Jul 17 17:27	15° Ω		opposition	4550 Feb 21 04:45	2° Υ 26'33	0°-12'-31
				min. Earth dist.	4550 Feb 21 04:25	2° Υ 26'35	28.96097 AU
conjunction	4542 Aug 05 16:48	15° Ω 41'56	0°-36'-27	direct	4550 May 10 18:34	1° Υ 01'49	
minimum elong	4542 Aug 05 16:48	15° Ω 41'56	0°36'28				
max. Earth dist.	4542 Aug 05 22:06	15° Ω 42'26	30.90054 AU	conjunction	4550 Aug 24 07:33	3° Υ 32'53	0°-10'-2
retrograde	4542 Nov 19 19:40	18° Ω 14'24		minimum elong	4550 Aug 24 07:33	3° Υ 32'53	0°10'04
opposition	4543 Feb 06 03:23	16° Ω 50'05	0°-37'-16	behind sun begin	4550 Aug 24 02:17	3° Υ 32'25	
min. Earth dist.	4543 Feb 05 22:38	16° Ω 50'26	28.90341 AU	behind sun end	4550 Aug 24 12:48	3° Υ 33'21	
direct	4543 Apr 25 06:17	15° Ω 25'35		max. Earth dist.	4550 Aug 24 08:04	3° Υ 32'55	30.96688 AU
				retrograde	4550 Dec 07 18:01	6° Υ 04'05	
conjunction	4543 Aug 08 06:48	17° Ω 56'23	0°-33'-16	opposition	4551 Feb 23 15:08	4° Υ 40'15	0°-8'-52
minimum elong	4543 Aug 08 06:48	17° Ω 56'23	0°33'18	min. Earth dist.	4551 Feb 23 14:51	4° Υ 40'16	28.97266 AU
max. Earth dist.	4543 Aug 08 12:16	17° Ω 56'53	30.90598 AU	direct	4551 May 13 07:07	3° Υ 15'32	
retrograde	4543 Nov 22 06:16	20° Ω 28'39					
opposition	4544 Feb 08 14:01	19° Ω 04'22	0°-33'-51	conjunction	4551 Aug 26 21:09	5° Υ 46'40	0°-6'-38
min. Earth dist.	4544 Feb 08 09:42	19° Ω 04'40	28.90879 AU	minimum elong	4551 Aug 26 21:10	5° Υ 46'40	0°06'39
direct	4544 Apr 26 18:41	17° Ω 39'47		behind sun begin	4551 Aug 26 15:00	5° Υ 46'07	
				behind sun end	4551 Aug 27 03:20	5° Υ 47'13	
conjunction	4544 Aug 09 20:39	20° Ω 10'34	0°-30'-3	max. Earth dist.	4551 Aug 26 19:58	5° Υ 46'34	30.97837 AU
minimum elong	4544 Aug 09 20:39	20° Ω 10'34	0°30'05	retrograde	4551 Dec 10 05:50	8° Υ 17'45	
max. Earth dist.	4544 Aug 10 00:15	20° Ω 10'54	30.91160 AU	opposition	4552 Feb 26 01:40	6° Υ 54'01	0°-5'-12
retrograde	4544 Nov 23 18:21	22° Ω 42'40		min. Earth dist.	4552 Feb 26 02:47	6° Υ 53'56	28.98395 AU
opposition	4545 Feb 10 00:32	21° Ω 18'23	0°-30'-23	direct	4552 May 14 16:35	5° Υ 29'18	
min. Earth dist.	4545 Feb 09 20:50	21° Ω 18'39	28.91475 AU				
direct	4545 Apr 29 06:21	19° Ω 53'44		conjunction	4552 Aug 28 11:04	8° Υ 00'29	0°-3'-13
				minimum elong	4552 Aug 28 11:04	8° Υ 00'29	0°03'14
conjunction	4545 Aug 12 10:38	22° Ω 24'32	0°-26'-48	behind sun begin	4552 Aug 28 04:30	7° Υ 59'54	
minimum elong	4545 Aug 12 10:38	22° Ω 24'32	0°26'49	behind sun end	4552 Aug 28 17:38	8° Υ 01'04	
max. Earth dist.	4545 Aug 12 14:40	22° Ω 24'55	30.91787 AU	max. Earth dist.	4552 Aug 28 09:41	8° Υ 00'25	30.98922 AU
retrograde	4545 Nov 26 05:09	24° Ω 56'27		retrograde	4552 Dec 11 16:07	10° Υ 31'26	
opposition	4546 Feb 12 11:05	23° Ω 32'12	0°-26'-52	opposition	4553 Feb 27 12:02	9° Υ 07'48	0°-1'-32
min. Earth dist.	4546 Feb 12 08:24	23° Ω 32'23	28.92143 AU	min. Earth dist.	4553 Feb 27 13:56	9° Υ 07'40	28.99424 AU
direct	4546 May 01 19:18	22° Ω 07'29		direct	4553 May 17 04:32	7° Υ 43'04	
				asc. node	4553 Aug 02 06:53	9° Υ 12'02	
conjunction	4546 Aug 15 00:23	24° Ω 38'19	0°-23'-30				
minimum elong	4546 Aug 15 00:23	24° Ω 38'19	0°23'31	conjunction	4553 Aug 31 00:51	10° Υ 14'17	0°00'17
max. Earth dist.	4546 Aug 15 02:51	24° Ω 38'32	30.92519 AU	minimum elong	4553 Aug 31 00:49	10° Υ 14'17	0°00'17
retrograde	4546 Nov 28 18:08	27° Ω 10'03		behind sun begin	4553 Aug 30 18:16	10° Υ 13'42	
opposition	4547 Feb 14 21:26	25° Ω 45'51	0°-23'-20	behind sun end	4553 Aug 31 07:22	10° Υ 14'52	
min. Earth dist.	4547 Feb 14 18:30	25° Ω 46'03	28.92939 AU	max. Earth dist.	4553 Aug 30 21:09	10° Υ 13'59	30.99904 AU
direct	4547 May 04 07:21	24° Ω 21'05		retrograde	4553 Dec 14 03:36	12° Υ 45'05	
				opposition	4554 Mar 01 22:28	11° Υ 21'30	0°02'07
conjunction	4547 Aug 17 14:13	26° Ω 51'58	0°-20'-11	min. Earth dist.	4554 Mar 02 01:14	11° Υ 21'18	29.00362 AU
minimum elong	4547 Aug 17 14:13	26° Ω 51'58	0°20'12	direct	4554 May 19 15:55	9° Υ 56'44	
max. Earth dist.	4547 Aug 17 16:45	26° Ω 52'11	30.93379 AU				
retrograde	4547 Dec 01 05:45	29° Ω 23'33		conjunction	4554 Sep 02 14:35	12° Υ 27'59	0°03'46
opposition	4548 Feb 17 07:59	27° Ω 59'24	0°-19'-45	minimum elong	4554 Sep 02 14:35	12° Υ 27'59	0°03'46
min. Earth dist.	4548 Feb 17 06:21	27° Ω 59'31	28.93874 AU	behind sun begin	4554 Sep 02 08:04	12° Υ 27'24	
direct	4548 May 05 19:21	26° Ω 34'38		behind sun end	4554 Sep 02 21:07	12° Υ 28'34	
				max. Earth dist.	4554 Sep 02 10:59	12° Υ 27'41	31.00788 AU
conjunction	4548 Aug 19 03:50	29° Ω 05'33	0°-16'-49	retrograde	4554 Dec 16 13:38	14° Υ 58'37	

opposition	4555 Mar 04 08:52	13° \mathring{M} 35'04	0°05'46		4562 Sep 15 21:14	0° \underline{A}	
min. Earth dist.	4555 Mar 04 13:01	13° \mathring{M} 34'47	29.01205 AU				
direct	4555 May 22 04:22	12° \mathring{M} 10'16		conjunction	4562 Sep 21 00:23	0° \underline{A} 11'25	0°30'22
				minimum elong	4562 Sep 21 00:23	0° \underline{A} 11'25	0°30'22
conjunction	4555 Sep 05 04:07	14° \mathring{M} 41'31	0°07'10	max. Earth dist.	4562 Sep 20 14:22	0° \underline{A} 10'30	31.08702 AU
minimum elong	4555 Sep 05 04:06	14° \mathring{M} 41'31	0°07'10	retrograde	4563 Jan 03 06:46	2° \underline{A} 40'46	
behind sun begin	4555 Sep 04 22:03	14° \mathring{M} 40'59		opposition	4563 Mar 21 18:32	1° \underline{A} 17'40	0°34'08
behind sun end	4555 Sep 05 10:09	14° \mathring{M} 42'03		min. Earth dist.	4563 Mar 22 02:48	1° \underline{A} 17'05	29.09371 AU
max. Earth dist.	4555 Sep 04 22:34	14° \mathring{M} 41'02	31.01613 AU		4563 May 18 23:59	30° \mathring{R} \mathring{M}	
retrograde	4555 Dec 19 02:01	17° \mathring{M} 11'59		direct	4563 Jun 09 03:34	29° \mathring{M} 52'42	
opposition	4556 Mar 05 19:06	15° \mathring{M} 48'29	0°09'24		4563 Jun 30 05:08	0° \underline{A}	
min. Earth dist.	4556 Mar 05 23:17	15° \mathring{M} 48'11	29.02015 AU				
direct	4556 May 23 16:03	14° \mathring{M} 23'37		conjunction	4563 Sep 23 13:30	2° \underline{A} 24'02	0°33'33
				minimum elong	4563 Sep 23 13:30	2° \underline{A} 24'02	0°33'34
conjunction	4556 Sep 06 17:34	16° \mathring{M} 54'52	0°10'33	max. Earth dist.	4563 Sep 23 03:51	2° \underline{A} 23'09	31.10003 AU
minimum elong	4556 Sep 06 17:34	16° \mathring{M} 54'52	0°10'33	retrograde	4564 Jan 05 16:26	4° \underline{A} 53'15	
behind sun begin	4556 Sep 06 12:30	16° \mathring{M} 54'25		opposition	4564 Mar 23 04:49	3° \underline{A} 30'15	0°37'30
behind sun end	4556 Sep 06 22:39	16° \mathring{M} 55'19		min. Earth dist.	4564 Mar 23 14:27	3° \underline{A} 29'34	29.10650 AU
max. Earth dist.	4556 Sep 06 11:54	16° \mathring{M} 54'22	31.02407 AU	direct	4564 Jun 10 14:43	2° \underline{A} 05'19	
retrograde	4556 Dec 20 12:57	19° \mathring{M} 25'09					
opposition	4557 Mar 08 05:27	18° \mathring{M} 01'40	0°13'02	conjunction	4564 Sep 25 02:26	4° \underline{A} 36'40	0°36'40
min. Earth dist.	4557 Mar 08 11:16	18° \mathring{M} 01'15	29.02811 AU	minimum elong	4564 Sep 25 02:26	4° \underline{A} 36'40	0°36'40
direct	4557 May 26 05:04	16° \mathring{M} 36'46		max. Earth dist.	4564 Sep 24 14:52	4° \underline{A} 35'36	31.11245 AU
				retrograde	4565 Jan 07 04:23	7° \underline{A} 05'46	
conjunction	4557 Sep 09 06:58	19° \mathring{M} 08'00	0°13'55	opposition	4565 Mar 25 15:06	5° \underline{A} 42'50	0°40'48
minimum elong	4557 Sep 09 06:58	19° \mathring{M} 08'00	0°13'55	min. Earth dist.	4565 Mar 26 00:47	5° \underline{A} 42'10	29.11843 AU
behind sun begin	4557 Sep 09 03:45	19° \mathring{M} 07'43		direct	4565 Jun 13 02:05	4° \underline{A} 17'55	
behind sun end	4557 Sep 09 10:10	19° \mathring{M} 08'17					
max. Earth dist.	4557 Sep 09 00:05	19° \mathring{M} 07'23	31.03223 AU	conjunction	4565 Sep 27 15:34	6° \underline{A} 49'17	0°39'45
retrograde	4557 Dec 23 01:27	21° \mathring{M} 38'06		minimum elong	4565 Sep 27 15:34	6° \underline{A} 49'17	0°39'45
opposition	4558 Mar 10 15:30	20° \mathring{M} 14'39	0°16'38	max. Earth dist.	4565 Sep 27 03:43	6° \underline{A} 48'11	31.12365 AU
min. Earth dist.	4558 Mar 10 20:59	20° \mathring{M} 14'15	29.03648 AU	retrograde	4566 Jan 09 14:37	9° \underline{A} 18'15	
direct	4558 May 28 18:52	18° \mathring{M} 49'41		opposition	4566 Mar 28 01:30	7° \underline{A} 55'23	0°44'03
				min. Earth dist.	4566 Mar 28 13:00	7° \underline{A} 54'35	29.12907 AU
conjunction	4558 Sep 11 20:14	21° \mathring{M} 20'56	0°17'16	direct	4566 Jun 15 14:37	6° \underline{A} 30'28	
minimum elong	4558 Sep 11 20:14	21° \mathring{M} 20'56	0°17'16				
max. Earth dist.	4558 Sep 11 12:50	21° \mathring{M} 20'16	31.04089 AU	conjunction	4566 Sep 30 04:29	9° \underline{A} 01'50	0°42'45
retrograde	4558 Dec 25 11:46	23° \mathring{M} 50'51		minimum elong	4566 Sep 30 04:29	9° \underline{A} 01'50	0°42'45
opposition	4559 Mar 13 01:49	22° \mathring{M} 27'26	0°20'12	max. Earth dist.	4566 Sep 29 15:10	9° \underline{A} 00'36	31.13371 AU
min. Earth dist.	4559 Mar 13 08:44	22° \mathring{M} 26'56	29.04573 AU	retrograde	4567 Jan 12 02:41	11° \underline{A} 30'39	
direct	4559 May 31 06:00	21° \mathring{M} 02'26		opposition	4567 Mar 30 11:50	10° \underline{A} 07'50	0°47'14
				min. Earth dist.	4567 Mar 30 23:09	10° \underline{A} 07'03	29.13850 AU
conjunction	4559 Sep 14 09:16	23° \mathring{M} 33'40	0°20'36	direct	4567 Jun 18 04:09	8° \underline{A} 42'54	
minimum elong	4559 Sep 14 09:15	23° \mathring{M} 33'40	0°20'36				
max. Earth dist.	4559 Sep 14 01:47	23° \mathring{M} 32'59	31.05071 AU	conjunction	4567 Oct 02 17:11	11° \underline{A} 14'16	0°45'41
retrograde	4559 Dec 27 23:12	26° \mathring{M} 03'25		minimum elong	4567 Oct 02 17:11	11° \underline{A} 14'16	0°45'42
opposition	4560 Mar 14 12:00	24° \mathring{M} 40'03	0°23'44	max. Earth dist.	4567 Oct 02 03:07	11° \underline{A} 12'58	31.14251 AU
min. Earth dist.	4560 Mar 14 18:30	24° \mathring{M} 39'36	29.05613 AU	retrograde	4568 Jan 14 13:04	13° \underline{A} 42'57	
direct	4560 Jun 01 19:04	23° \mathring{M} 15'03		opposition	4568 Mar 31 22:14	12° \underline{A} 20'10	0°50'20
				min. Earth dist.	4568 Apr 01 11:18	12° \underline{A} 19'16	29.14691 AU
conjunction	4560 Sep 15 22:18	25° \mathring{M} 46'17	0°23'53	direct	4568 Jun 19 15:31	10° \underline{A} 55'13	
minimum elong	4560 Sep 15 22:18	25° \mathring{M} 46'17	0°23'53				
max. Earth dist.	4560 Sep 15 13:39	25° \mathring{M} 45'29	31.06174 AU	conjunction	4568 Oct 04 05:57	13° \underline{A} 26'33	0°48'34
retrograde	4560 Dec 29 10:38	28° \mathring{M} 15'53		minimum elong	4568 Oct 04 05:56	13° \underline{A} 26'33	0°48'33
opposition	4561 Mar 16 22:07	26° \mathring{M} 52'35	0°27'15	max. Earth dist.	4568 Oct 03 15:24	13° \underline{A} 25'12	31.15051 AU
min. Earth dist.	4561 Mar 17 05:31	26° \mathring{M} 52'04	29.06790 AU	retrograde	4569 Jan 16 00:15	15° \underline{A} 55'05	
direct	4561 Jun 04 05:04	25° \mathring{M} 27'35		opposition	4569 Apr 03 08:22	14° \underline{A} 32'20	0°53'22
				min. Earth dist.	4569 Apr 03 21:26	14° \underline{A} 31'25	29.15450 AU
conjunction	4561 Sep 18 11:29	27° \mathring{M} 58'51	0°27'09	direct	4569 Jun 22 05:13	13° \underline{A} 07'21	
minimum elong	4561 Sep 18 11:29	27° \mathring{M} 58'51	0°27'09				
max. Earth dist.	4561 Sep 18 03:09	27° \mathring{M} 58'05	31.07406 AU	conjunction	4569 Oct 06 18:32	15° \underline{A} 38'40	0°51'22
	4561 Nov 20 13:25	0° \underline{A}		minimum elong	4569 Oct 06 18:32	15° \underline{A} 38'40	0°51'22
retrograde	4561 Dec 31 19:56	0° \underline{A} 28'18		max. Earth dist.	4569 Oct 06 02:39	15° \underline{A} 37'12	31.15783 AU
	4562 Feb 11 19:25	30° \mathring{R} \mathring{M}		retrograde	4570 Jan 18 11:25	18° \underline{A} 07'04	
opposition	4562 Mar 19 08:19	29° \mathring{M} 05'06	0°30'43	opposition	4570 Apr 05 18:41	16° \underline{A} 44'21	0°56'19
min. Earth dist.	4562 Mar 19 16:07	29° \mathring{M} 04'34	29.08054 AU	min. Earth dist.	4570 Apr 06 08:45	16° \underline{A} 43'22	29.16185 AU
direct	4562 Jun 06 17:18	27° \mathring{M} 40'08		direct	4570 Jun 24 16:09	15° \underline{A} 19'19	

conjunction	4570 Oct 09 06:56	17°♂50'37	0°54'05	conjunction	4578 Oct 27 07:19	5°♂24'24	1°12'38
minimum elong	4570 Oct 09 06:56	17°♂50'37	0°54'05	minimum elong	4578 Oct 27 07:19	5°♂24'24	1°12'38
max. Earth dist.	4570 Oct 08 15:28	17°♂49'11	31.16513 AU	retrograde	4579 Feb 07 08:35	7°♂51'54	
retrograde	4571 Jan 20 19:57	20°♂18'52		opposition	4579 Apr 25 16:14	6°♂29'41	1°18'36
opposition	4571 Apr 08 04:59	18°♂56'11	0°59'11	min. Earth dist.	4579 Apr 26 10:05	6°♂28'27	29.24300 AU
min. Earth dist.	4571 Apr 08 19:20	18°♂55'10	29.16926 AU	direct	4579 Jul 15 01:55	5°♂04'47	
direct	4571 Jun 27 05:04	17°♂31'08					
conjunction	4571 Oct 11 19:08	20°♂02'24	0°56'43	conjunction	4579 Oct 29 19:12	7°♂36'02	1°14'31
minimum elong	4571 Oct 11 19:08	20°♂02'24	0°56'44	minimum elong	4579 Oct 29 19:12	7°♂36'02	1°14'32
max. Earth dist.	4571 Oct 11 02:14	20°♂00'50	31.17284 AU	max. Earth dist.	4579 Oct 28 23:40	7°♂34'13	31.24536 AU
retrograde	4572 Jan 23 06:02	22°♂30'31		retrograde	4580 Feb 09 17:13	10°♂03'25	
opposition	4572 Apr 09 15:11	21°♂07'52	1°01'57	opposition	4580 Apr 27 02:44	8°♂41'13	1°20'32
min. Earth dist.	4572 Apr 10 05:34	21°♂06'52	29.17751 AU	min. Earth dist.	4580 Apr 27 21:10	8°♂39'57	29.24879 AU
direct	4572 Jun 28 15:19	19°♂42'49		direct	4580 Jul 16 15:00	7°♂16'19	
				max. Earth dist.	4580 Oct 30 09:40	9°♂45'32	31.25057 AU
conjunction	4572 Oct 13 07:26	22°♂14'05	0°59'16	conjunction	4580 Oct 31 06:52	9°♂47'30	1°16'16
minimum elong	4572 Oct 13 07:26	22°♂14'05	0°59'16	minimum elong	4580 Oct 31 06:52	9°♂47'30	1°16'17
max. Earth dist.	4572 Oct 12 15:22	22°♂12'36	31.18145 AU	retrograde	4581 Feb 11 03:37	12°♂14'46	
retrograde	4573 Jan 24 14:58	24°♂42'05		opposition	4581 Apr 29 13:18	10°♂52'35	1°22'22
opposition	4573 Apr 12 01:33	23°♂19'30	1°04'38	min. Earth dist.	4581 Apr 30 07:54	10°♂51'18	29.25354 AU
min. Earth dist.	4573 Apr 12 16:47	23°♂18'26	29.18659 AU	direct	4581 Jul 19 02:18	9°♂27'38	
direct	4573 Jul 01 02:02	21°♂54'27					
conjunction	4573 Oct 15 19:30	24°♂25'43	1°01'44	conjunction	4581 Nov 02 18:32	11°♂58'46	1°17'55
minimum elong	4573 Oct 15 19:30	24°♂25'42	1°01'45	minimum elong	4581 Nov 02 18:32	11°♂58'46	1°17'57
max. Earth dist.	4573 Oct 15 02:10	24°♂24'06	31.19106 AU	max. Earth dist.	4581 Nov 01 22:03	11°♂56'52	31.25479 AU
retrograde	4574 Jan 27 01:54	26°♂53'38		retrograde	4582 Feb 13 12:06	14°♂25'56	
opposition	4574 Apr 14 11:46	25°♂31'06	1°07'13	opposition	4582 May 01 23:57	13°♂03'44	1°24'04
min. Earth dist.	4574 Apr 15 02:24	25°♂30'05	29.19665 AU	min. Earth dist.	4582 May 02 19:36	13°♂02'22	29.25743 AU
direct	4574 Jul 03 12:46	24°♂06'06		direct	4582 Jul 21 13:59	11°♂38'45	
				max. Earth dist.	4582 Nov 04 08:14	14°♂07'47	31.25856 AU
conjunction	4574 Oct 18 07:39	26°♂37'22	1°04'07	conjunction	4582 Nov 05 05:52	14°♂09'48	1°19'28
minimum elong	4574 Oct 18 07:39	26°♂37'22	1°04'07	minimum elong	4582 Nov 05 05:52	14°♂09'48	1°19'28
max. Earth dist.	4574 Oct 17 14:48	26°♂35'48	31.20139 AU		4582 Nov 28 04:17	15°♂	
retrograde	4575 Jan 29 11:33	29°♂05'13		retrograde	4583 Feb 15 22:05	16°♂36'52	
opposition	4575 Apr 16 22:15	27°♂42'46	1°09'42	opposition	4583 May 04 10:27	15°♂14'39	1°25'39
min. Earth dist.	4575 Apr 17 14:11	27°♂41'40	29.20723 AU	min. Earth dist.	4583 May 05 05:22	15°♂13'20	29.26122 AU
direct	4575 Jul 06 00:34	26°♂17'48			4583 May 13 07:13	15°♂	
				direct	4583 Jul 24 01:25	13°♂49'38	
conjunction	4575 Oct 20 19:29	28°♂49'05	1°06'24		4583 Sep 30 12:49	15°♂	
minimum elong	4575 Oct 20 19:28	28°♂49'05	1°06'25	conjunction	4583 Nov 07 17:05	16°♂20'37	1°20'53
max. Earth dist.	4575 Oct 20 01:45	28°♂47'27	31.21202 AU	minimum elong	4583 Nov 07 17:05	16°♂20'37	1°20'54
	4575 Nov 22 22:10	0°♂		max. Earth dist.	4583 Nov 06 20:10	16°♂18'41	31.26235 AU
retrograde	4576 Jan 31 23:04	1°♂16'52		retrograde	4584 Feb 18 06:35	18°♂47'35	
	4576 Apr 15 01:16	30°♂		opposition	4584 May 05 21:09	17°♂25'22	1°27'07
opposition	4576 Apr 18 08:34	29°♂54'30	1°12'06	min. Earth dist.	4584 May 06 17:03	17°♂23'59	29.26532 AU
min. Earth dist.	4576 Apr 19 00:02	29°♂53'25	29.21767 AU	direct	4584 Jul 25 12:43	16°♂00'21	
direct	4576 Jul 07 13:03	28°♂29'34		max. Earth dist.	4584 Nov 08 06:52	18°♂29'17	31.26684 AU
	4576 Sep 24 04:20	0°♂					
conjunction	4576 Oct 22 07:32	1°♂00'52	1°08'35	conjunction	4584 Nov 09 04:13	18°♂31'16	1°22'12
minimum elong	4576 Oct 22 07:32	1°♂00'52	1°08'34	minimum elong	4584 Nov 09 04:13	18°♂31'16	1°22'11
max. Earth dist.	4576 Oct 21 13:18	0°♂59'11	31.22204 AU	retrograde	4585 Feb 19 17:03	20°♂58'09	
retrograde	4577 Feb 02 09:39	3°♂28'34		opposition	4585 May 08 07:36	19°♂35'57	1°28'27
opposition	4577 Apr 20 19:02	2°♂06'16	1°14'22	min. Earth dist.	4585 May 09 02:28	19°♂34'39	29.27024 AU
min. Earth dist.	4577 Apr 21 12:04	2°♂05'05	29.22736 AU	direct	4585 Jul 28 00:35	18°♂10'55	
direct	4577 Jul 09 23:55	0°♂41'21					
conjunction	4577 Oct 24 19:34	3°♂12'39	1°10'40	conjunction	4585 Nov 11 15:20	20°♂41'49	1°23'23
minimum elong	4577 Oct 24 19:33	3°♂12'39	1°10'40	minimum elong	4585 Nov 11 15:20	20°♂41'49	1°23'24
max. Earth dist.	4577 Oct 24 01:01	3°♂10'56	31.23116 AU	max. Earth dist.	4585 Nov 10 18:09	20°♂39'51	31.27223 AU
retrograde	4578 Feb 04 21:15	5°♂40'15		retrograde	4586 Feb 22 03:17	23°♂08'40	
opposition	4578 Apr 23 05:35	4°♂18'00	1°16'32	opposition	4586 May 10 18:23	21°♂46'29	1°29'39
min. Earth dist.	4578 Apr 23 22:34	4°♂16'50	29.23581 AU	min. Earth dist.	4586 May 11 14:00	21°♂45'08	29.27626 AU
direct	4578 Jul 12 14:08	2°♂53'07		direct	4586 Jul 30 11:09	20°♂21'30	
max. Earth dist.	4578 Oct 26 11:30	5°♂22'33	31.23888 AU	max. Earth dist.	4586 Nov 13 05:37	22°♂50'28	31.27875 AU

conjunction	4586 Nov 14 02:13	22°M.52'23	1°24'27	minimum elong	4594 Dec 01 16:17	10°♂19'09	1°28'33
minimum elong	4586 Nov 14 02:12	22°M.52'23	1°24'27	max. Earth dist.	4594 Nov 30 18:23	10°♂17'07	31.31341 AU
retrograde	4587 Feb 24 14:20	25°M.19'12		retrograde	4595 Mar 13 21:58	12°♂45'48	
opposition	4587 May 13 05:04	23°M.57'05	1°30'44	opposition	4595 May 30 21:01	11°♂23'53	1°34'34
min. Earth dist.	4587 May 14 00:00	23°M.55'46	29.28303 AU	min. Earth dist.	4595 May 31 17:43	11°♂22'28	29.31452 AU
direct	4587 Aug 02 00:42	22°M.32'09		direct	4595 Aug 19 19:41	9°♂59'10	
				max. Earth dist.	4595 Dec 03 05:28	12°♂27'44	31.31373 AU
conjunction	4587 Nov 16 13:07	25°M.03'02	1°25'24				
minimum elong	4587 Nov 16 13:07	25°M.03'02	1°25'25	conjunction	4595 Dec 04 02:40	12°♂29'43	1°28'30
max. Earth dist.	4587 Nov 15 15:53	25°M.01'03	31.28575 AU	minimum elong	4595 Dec 04 02:40	12°♂29'43	1°28'31
retrograde	4588 Feb 27 01:53	27°M.29'50		retrograde	4596 Mar 15 08:31	14°♂56'19	
opposition	4588 May 14 15:42	26°M.07'46	1°31'41	opposition	4596 Jun 01 07:59	13°♂34'22	1°34'27
min. Earth dist.	4588 May 15 11:02	26°M.06'27	29.29022 AU	min. Earth dist.	4596 Jun 02 03:57	13°♂33'00	29.31479 AU
direct	4588 Aug 03 11:47	24°M.42'54		direct	4596 Aug 21 09:19	12°♂09'37	
max. Earth dist.	4588 Nov 17 03:42	27°M.11'54	31.29279 AU				
conjunction	4588 Nov 18 00:09	27°M.13'48	1°26'14	conjunction	4596 Dec 05 12:55	14°♂40'07	1°28'19
minimum elong	4588 Nov 18 00:09	27°M.13'48	1°26'14	minimum elong	4596 Dec 05 12:55	14°♂40'07	1°28'19
retrograde	4589 Feb 28 10:59	29°M.40'35		max. Earth dist.	4596 Dec 04 15:19	14°♂38'06	31.31419 AU
opposition	4589 May 17 02:36	28°M.18'36	1°32'29	retrograde	4597 Mar 17 19:45	17°♂06'41	
min. Earth dist.	4589 May 17 22:11	28°M.17'15	29.29692 AU	opposition	4597 Jun 03 19:14	15°♂44'42	1°34'12
direct	4589 Aug 06 00:26	26°M.53'47		min. Earth dist.	4597 Jun 04 15:00	15°♂43'21	29.31569 AU
				direct	4597 Aug 23 20:26	14°♂19'58	
conjunction	4589 Nov 20 10:56	29°M.24'40	1°26'56	conjunction	4597 Dec 07 23:05	16°♂50'23	1°28'01
minimum elong	4589 Nov 20 10:55	29°M.24'40	1°26'57	minimum elong	4597 Dec 07 23:05	16°♂50'23	1°28'03
max. Earth dist.	4589 Nov 19 13:14	29°M.22'39	31.29913 AU	max. Earth dist.	4597 Dec 07 02:57	16°♂48'30	31.31549 AU
	4589 Dec 06 09:36	0°♂		retrograde	4598 Mar 20 04:46	19°♂16'57	
retrograde	4590 Mar 02 21:56	1°♂51'27		opposition	4598 Jun 06 06:33	17°♂54'58	1°33'49
opposition	4590 May 19 13:32	0°♂29'31	1°33'10	min. Earth dist.	4598 Jun 07 01:54	17°♂53'39	29.31739 AU
min. Earth dist.	4590 May 20 08:55	0°♂28'11	29.30288 AU	direct	4598 Aug 26 09:14	16°♂30'16	
	4590 Jun 06 20:25	30°R. M.					
direct	4590 Aug 08 11:40	29°M.04'45		conjunction	4598 Dec 10 09:07	19°♂00'37	1°27'36
	4590 Oct 07 12:42	0°♂		minimum elong	4598 Dec 10 09:07	19°♂00'37	1°27'36
conjunction	4590 Nov 22 21:51	1°♂35'38	1°27'30	max. Earth dist.	4598 Dec 09 12:23	18°♂58'41	31.31776 AU
minimum elong	4590 Nov 22 21:51	1°♂35'38	1°27'30	retrograde	4599 Mar 22 16:16	21°♂27'12	
max. Earth dist.	4590 Nov 22 01:04	1°♂33'41	31.30446 AU	opposition	4599 Jun 08 17:44	20°♂05'13	1°33'17
retrograde	4591 Mar 05 07:10	4°♂02'23		min. Earth dist.	4599 Jun 09 12:11	20°♂03'58	29.32013 AU
opposition	4591 May 22 00:36	2°♂40'30	1°33'43	direct	4599 Aug 28 21:03	18°♂40'34	
min. Earth dist.	4591 May 22 20:58	2°♂39'06	29.30762 AU	conjunction	4599 Dec 12 19:14	21°♂10'54	1°27'02
direct	4591 Aug 10 23:12	1°♂15'47		minimum elong	4599 Dec 12 19:14	21°♂10'54	1°27'04
max. Earth dist.	4591 Nov 24 10:35	3°♂44'34	31.30859 AU	max. Earth dist.	4599 Dec 12 00:01	21°♂09'06	31.32078 AU
				retrograde	4600 Mar 25 01:41	23°♂37'30	
conjunction	4591 Nov 25 08:31	3°♂46'36	1°27'57	opposition	4600 Jun 11 05:08	22°♂15'33	1°32'38
minimum elong	4591 Nov 25 08:31	3°♂46'36	1°27'58	min. Earth dist.	4600 Jun 12 00:05	22°♂14'16	29.32324 AU
retrograde	4592 Mar 06 17:11	6°♂13'21		direct	4600 Aug 31 09:06	20°♂50'57	
opposition	4592 May 23 11:35	4°♂51'29	1°34'08	max. Earth dist.	4600 Dec 14 09:30	23°♂19'24	31.32399 AU
min. Earth dist.	4592 May 24 07:14	4°♂50'08	29.31106 AU				
direct	4592 Aug 12 10:39	3°♂26'46		conjunction	4600 Dec 15 05:12	23°♂21'15	1°26'22
				minimum elong	4600 Dec 15 05:12	23°♂21'15	1°26'21
conjunction	4592 Nov 26 19:19	5°♂57'34	1°28'16				
minimum elong	4592 Nov 26 19:19	5°♂57'34	1°28'16				
max. Earth dist.	4592 Nov 25 21:50	5°♂55'33	31.31126 AU				
retrograde	4593 Mar 09 01:37	8°♂24'16					
opposition	4593 May 25 22:42	7°♂02'24	1°34'25				
min. Earth dist.	4593 May 26 19:31	7°♂00'59	29.31312 AU				
direct	4593 Aug 14 21:28	5°♂37'42					
max. Earth dist.	4593 Nov 28 07:57	8°♂06'23	31.31283 AU				
conjunction	4593 Nov 29 05:55	8°♂08'26	1°28'28				
minimum elong	4593 Nov 29 05:54	8°♂08'26	1°28'29				
retrograde	4594 Mar 11 11:54	10°♂35'06					
opposition	4594 May 28 09:48	9°♂13'13	1°34'34				
min. Earth dist.	4594 May 29 05:42	9°♂11'51	29.31411 AU				
direct	4594 Aug 17 08:41	7°♂48'31					
conjunction	4594 Dec 01 16:17	10°♂19'09	1°28'33				

retrograde	4600 Mar 25 01:41	23° 2 37'30		max. Earth dist.	4607 Dec 30 08:23	8° 3 33'48	31.31793 AU
opposition	4600 Jun 11 05:08	22° 2 15'33	1°32'38				
min. Earth dist.	4600 Jun 12 00:05	22° 2 14'16	29.32324 AU	conjunction	4607 Dec 31 02:52	8° 3 35'32	1°18'12
direct	4600 Aug 31 09:06	20° 2 50'57		minimum elong	4607 Dec 31 02:52	8° 3 35'32	1°18'13
max. Earth dist.	4600 Dec 14 09:30	23° 2 19'24	31.32399 AU	retrograde	4608 Apr 11 14:07	11° 3 02'28	
				opposition	4608 Jun 29 02:35	9° 3 40'28	1°22'42
conjunction	4600 Dec 15 05:12	23° 2 21'15	1°26'22	min. Earth dist.	4608 Jun 29 19:14	9° 3 39'20	29.31615 AU
minimum elong	4600 Dec 15 05:12	23° 2 21'15	1°26'21	direct	4608 Sep 18 05:29	8° 3 16'07	
retrograde	4601 Mar 27 11:53	25° 2 47'53					
opposition	4601 Jun 13 16:28	24° 2 25'59	1°31'50	conjunction	4609 Jan 01 12:33	10° 3 46'00	1°16'35
min. Earth dist.	4601 Jun 14 10:12	24° 2 24'46	29.32630 AU	minimum elong	4609 Jan 01 12:33	10° 3 46'00	1°16'35
direct	4601 Sep 02 20:25	23° 2 01'27		max. Earth dist.	4608 Dec 31 19:42	10° 3 44'25	31.31295 AU
				retrograde	4609 Apr 13 23:44	13° 3 12'59	
conjunction	4601 Dec 17 15:19	25° 2 31'43	1°25'33	opposition	4609 Jul 01 14:32	11° 3 50'55	1°20'54
minimum elong	4601 Dec 17 15:19	25° 2 31'43	1°25'34	min. Earth dist.	4609 Jul 02 07:23	11° 3 49'47	29.31125 AU
max. Earth dist.	4601 Dec 16 20:27	25° 2 29'57	31.32675 AU	direct	4609 Sep 20 18:07	10° 3 26'35	
retrograde	4602 Mar 29 20:58	27° 2 58'24					
opposition	4602 Jun 16 04:10	26° 2 36'32	1°30'54	conjunction	4610 Jan 03 22:03	12° 3 56'23	1°14'51
min. Earth dist.	4602 Jun 16 22:43	26° 2 35'16	29.32874 AU	minimum elong	4610 Jan 03 22:04	12° 3 56'23	1°14'52
direct	4602 Sep 05 06:55	25° 2 12'03		max. Earth dist.	4610 Jan 03 05:13	12° 3 54'48	31.30842 AU
max. Earth dist.	4602 Dec 19 06:18	27° 2 40'30	31.32877 AU	retrograde	4610 Apr 16 09:45	15° 3 23'26	
				opposition	4610 Jul 04 02:24	14° 3 01'20	1°19'00
conjunction	4602 Dec 20 01:12	27° 2 42'17	1°24'37	min. Earth dist.	4610 Jul 04 17:26	14° 3 00'19	29.30708 AU
minimum elong	4602 Dec 20 01:12	27° 2 42'17	1°24'37	direct	4610 Sep 23 05:49	12° 3 37'01	
	4603 Mar 09 07:27	0° 3					
retrograde	4603 Apr 01 07:31	0° 3 09'01		conjunction	4611 Jan 06 07:32	15° 3 06'45	1°13'01
	4603 Apr 24 18:59	30° R 2		minimum elong	4611 Jan 06 07:32	15° 3 06'46	1°13'01
opposition	4603 Jun 18 15:45	28° 2 47'10	1°29'51	max. Earth dist.	4611 Jan 05 15:57	15° 3 05'18	31.30464 AU
min. Earth dist.	4603 Jun 19 09:13	28° 2 45'58	29.33007 AU	retrograde	4611 Apr 18 18:45	17° 3 33'54	
direct	4603 Sep 07 18:03	27° 2 22'44		opposition	4611 Jul 06 14:27	16° 3 11'46	1°16'59
				min. Earth dist.	4611 Jul 07 05:41	16° 3 10'44	29.30373 AU
conjunction	4603 Dec 22 11:17	29° 2 52'55	1°23'34	direct	4611 Sep 25 16:37	14° 3 47'30	
minimum elong	4603 Dec 22 11:17	29° 2 52'55	1°23'35				
max. Earth dist.	4603 Dec 21 16:17	29° 2 51'08	31.32939 AU	conjunction	4612 Jan 08 17:03	17° 3 17'12	1°11'05
	4603 Dec 25 14:51	0° 3		minimum elong	4612 Jan 08 17:03	17° 3 17'12	1°11'06
retrograde	4604 Apr 02 18:05	2° 3 19'43		max. Earth dist.	4612 Jan 08 02:05	17° 3 15'47	31.30176 AU
opposition	4604 Jun 20 03:24	0° 3 57'51	1°28'40	retrograde	4612 Apr 20 05:09	19° 3 44'25	
min. Earth dist.	4604 Jun 20 21:42	0° 3 56'37	29.33004 AU	opposition	4612 Jul 08 02:14	18° 3 22'18	1°14'51
	4604 Jul 29 04:54	30° R 2		min. Earth dist.	4612 Jul 08 15:50	18° 3 21'22	29.30100 AU
direct	4604 Sep 09 04:31	29° 2 33'28		direct	4612 Sep 27 03:36	16° 3 58'05	
	4604 Oct 20 02:44	0° 3					
conjunction	4604 Dec 23 21:24	2° 3 03'37	1°22'24	conjunction	4613 Jan 10 02:34	19° 3 27'44	1°09'02
minimum elong	4604 Dec 23 21:24	2° 3 03'37	1°22'24	minimum elong	4613 Jan 10 02:34	19° 3 27'44	1°09'02
max. Earth dist.	4604 Dec 23 03:03	2° 3 01'54	31.32862 AU	max. Earth dist.	4613 Jan 09 12:01	19° 3 26'22	31.29926 AU
retrograde	4605 Apr 05 04:55	4° 3 30'27		retrograde	4613 Apr 22 15:49	21° 3 55'05	
opposition	4605 Jun 22 15:12	3° 3 08'35	1°27'21	opposition	4613 Jul 10 14:26	20° 3 32'57	1°12'37
min. Earth dist.	4605 Jun 23 08:51	3° 3 07'23	29.32836 AU	min. Earth dist.	4613 Jul 11 04:13	20° 3 32'01	29.29863 AU
direct	4605 Sep 11 17:25	1° 3 44'13		direct	4613 Sep 29 13:44	19° 3 08'48	
conjunction	4605 Dec 26 07:14	4° 3 14'18	1°21'07	conjunction	4614 Jan 12 12:01	21° 3 38'25	1°06'53
minimum elong	4605 Dec 26 07:14	4° 3 14'18	1°21'08	minimum elong	4614 Jan 12 12:01	21° 3 38'25	1°06'54
max. Earth dist.	4605 Dec 25 12:13	4° 3 12'32	31.32621 AU	max. Earth dist.	4614 Jan 11 22:51	21° 3 37'11	31.29690 AU
retrograde	4606 Apr 07 16:40	6° 3 41'12		retrograde	4614 Apr 25 02:31	24° 3 05'53	
opposition	4606 Jun 25 03:04	5° 3 19'17	1°25'55	opposition	4614 Jul 13 02:38	22° 3 43'45	1°10'16
min. Earth dist.	4606 Jun 25 20:42	5° 3 18'05	29.32531 AU	min. Earth dist.	4614 Jul 13 15:21	22° 3 42'53	29.29597 AU
direct	4606 Sep 14 04:06	3° 3 54'56		direct	4614 Oct 02 01:22	21° 3 19'39	
conjunction	4606 Dec 28 17:13	6° 3 24'58	1°19'43	conjunction	4615 Jan 14 21:30	23° 3 49'15	1°04'38
minimum elong	4606 Dec 28 17:13	6° 3 24'58	1°19'43	minimum elong	4615 Jan 14 21:30	23° 3 49'15	1°04'38
max. Earth dist.	4606 Dec 27 23:26	6° 3 23'18	31.32254 AU	max. Earth dist.	4615 Jan 14 07:58	23° 3 47'58	31.29400 AU
retrograde	4607 Apr 10 02:14	8° 3 51'53		retrograde	4615 Apr 27 14:42	26° 3 16'49	
opposition	4607 Jun 27 14:49	7° 3 29'56	1°24'22	opposition	4615 Jul 15 14:45	24° 3 54'40	1°07'49
min. Earth dist.	4607 Jun 28 08:22	7° 3 28'44	29.32101 AU	min. Earth dist.	4615 Jul 16 03:12	24° 3 53'49	29.29275 AU
direct	4607 Sep 16 17:02	6° 3 05'35		direct	4615 Oct 04 10:42	23° 3 30'37	

conjunction	4616 Jan 17 07:10	26°  00'10	1°02'18	conjunction	4624 Feb 03 10:40	13°  26'39	0°40'44
minimum elong	4616 Jan 17 07:11	26°  00'10	1°02'19	minimum elong	4624 Feb 03 10:40	13°  26'39	0°40'45
max. Earth dist.	4616 Jan 16 19:03	25°  59'02	31.29025 AU	max. Earth dist.	4624 Feb 03 02:57	13°  25'56	31.22740 AU
retrograde	4616 Apr 29 01:13	28°  27'51			4624 Mar 18 22:57	15° 	
opposition	4616 Jul 17 03:07	27°  05'40	1°05'16	retrograde	4624 May 16 16:40	15°  55'08	
min. Earth dist.	4616 Jul 17 15:21	27°  04'50	29.28831 AU		4624 Jul 17 22:53	15°  R 	
direct	4616 Oct 05 23:35	25°  41'40		opposition	4624 Aug 04 06:42	14°  32'23	0°41'55
				min. Earth dist.	4624 Aug 04 13:04	14°  31'58	29.22428 AU
conjunction	4617 Jan 18 16:38	28°  11'10	0°59'52	direct	4624 Oct 23 19:29	13°  08'28	
minimum elong	4617 Jan 18 16:39	28°  11'10	0°59'52		4625 Jan 19 03:21	15° 	
max. Earth dist.	4617 Jan 18 03:51	28°  09'58	31.28522 AU				
	4617 Mar 13 17:25	0° 		conjunction	4625 Feb 04 20:00	15°  37'26	0°37'43
retrograde	4617 May 01 14:20	0°  38'56		minimum elong	4625 Feb 04 20:00	15°  37'26	0°37'43
	4617 Jun 21 13:36	30°  R 		max. Earth dist.	4625 Feb 04 14:18	15°  36'54	31.22092 AU
opposition	4617 Jul 19 15:30	29°  16'43	1°02'38	retrograde	4625 May 19 03:33	18°  06'04	
min. Earth dist.	4617 Jul 20 02:48	29°  15'57	29.28260 AU	opposition	4625 Aug 06 19:21	16°  43'18	0°38'40
direct	4617 Oct 08 11:40	27°  52'44		min. Earth dist.	4625 Aug 07 00:54	16°  42'56	29.21804 AU
	4618 Jan 11 06:08	0° 		direct	4625 Oct 26 07:40	15°  19'28	
conjunction	4618 Jan 21 02:20	0°  22'11	0°57'21	conjunction	4626 Feb 07 05:17	17°  48'24	0°34'40
minimum elong	4618 Jan 21 02:20	0°  22'11	0°57'23	minimum elong	4626 Feb 07 05:17	17°  48'24	0°34'41
max. Earth dist.	4618 Jan 20 14:53	0°  21'06	31.27876 AU	max. Earth dist.	4626 Feb 06 23:30	17°  47'51	31.21508 AU
retrograde	4618 May 04 00:40	2°  50'03		retrograde	4626 May 21 17:27	20°  17'12	
opposition	4618 Jul 22 04:03	1°  27'45	0°59'54	opposition	4626 Aug 09 07:56	18°  54'25	0°35'22
min. Earth dist.	4618 Jul 22 15:45	1°  26'58	29.27540 AU	min. Earth dist.	4626 Aug 09 12:07	18°  54'08	29.21236 AU
direct	4618 Oct 10 23:59	0°  03'48		direct	4626 Oct 28 18:36	17°  30'39	
conjunction	4619 Jan 23 11:48	2°  33'09	0°54'46	conjunction	4627 Feb 09 14:44	19°  59'35	0°31'33
minimum elong	4619 Jan 23 11:48	2°  33'09	0°54'46	minimum elong	4627 Feb 09 14:44	19°  59'35	0°31'32
max. Earth dist.	4619 Jan 23 00:09	2°  32'03	31.27101 AU	max. Earth dist.	4627 Feb 09 10:38	19°  59'12	31.20934 AU
retrograde	4619 May 06 11:40	5°  01'06		retrograde	4627 May 24 04:41	22°  28'34	
opposition	4619 Jul 24 16:25	3°  38'44	0°57'06	opposition	4627 Aug 11 20:44	21°  05'46	0°32'01
min. Earth dist.	4619 Jul 25 02:40	3°  38'02	29.26693 AU	min. Earth dist.	4627 Aug 12 01:04	21°  05'28	29.20648 AU
direct	4619 Oct 13 12:28	2°  14'45		direct	4627 Oct 31 05:56	19°  42'04	
conjunction	4620 Jan 25 21:20	4°  44'02	0°52'06	conjunction	4628 Feb 12 00:11	22°  11'00	0°28'23
minimum elong	4620 Jan 25 21:21	4°  44'02	0°52'06	minimum elong	4628 Feb 12 00:11	22°  11'00	0°28'23
max. Earth dist.	4620 Jan 25 10:30	4°  43'01	31.26198 AU	max. Earth dist.	4628 Feb 11 20:15	22°  10'38	31.20333 AU
retrograde	4620 May 07 21:24	7°  12'03		retrograde	4628 May 25 16:52	24°  40'08	
opposition	4620 Jul 26 04:51	5°  49'35	0°54'12	opposition	4628 Aug 13 09:24	23°  17'19	0°28'36
min. Earth dist.	4620 Jul 26 15:33	5°  48'52	29.25756 AU	min. Earth dist.	4628 Aug 13 12:07	23°  17'08	29.20009 AU
direct	4620 Oct 15 00:25	4°  25'36		direct	4628 Nov 01 18:09	21°  53'41	
conjunction	4621 Jan 27 06:46	6°  54'47	0°49'21	conjunction	4629 Feb 13 09:49	24°  22'36	0°25'10
minimum elong	4621 Jan 27 06:46	6°  54'47	0°49'21	minimum elong	4629 Feb 13 09:49	24°  22'36	0°25'10
max. Earth dist.	4621 Jan 26 20:45	6°  53'50	31.25256 AU	max. Earth dist.	4629 Feb 13 06:38	24°  22'19	31.19646 AU
retrograde	4621 May 10 07:52	9°  22'52		retrograde	4629 May 28 04:27	26°  51'56	
opposition	4621 Jul 28 17:18	8°  00'19	0°51'14	opposition	4629 Aug 15 22:28	25°  29'04	0°25'09
min. Earth dist.	4621 Jul 29 02:10	7°  59'43	29.24805 AU	min. Earth dist.	4629 Aug 16 01:34	25°  28'51	29.19278 AU
direct	4621 Oct 17 12:47	6°  36'19		direct	4629 Nov 04 06:09	24°  05'30	
conjunction	4622 Jan 29 15:59	9°  05'25	0°46'33	conjunction	4630 Feb 15 19:24	26°  34'22	0°21'56
minimum elong	4622 Jan 29 15:59	9°  05'25	0°46'34	minimum elong	4630 Feb 15 19:24	26°  34'22	0°21'57
max. Earth dist.	4622 Jan 29 06:30	9°  04'31	31.24323 AU	max. Earth dist.	4630 Feb 15 16:59	26°  34'09	31.18863 AU
retrograde	4622 May 12 18:12	11°  33'37		retrograde	4630 May 30 16:05	29°  03'51	
opposition	4622 Jul 31 05:53	10°  10'59	0°48'12	opposition	4630 Aug 18 11:22	27°  40'57	0°21'40
min. Earth dist.	4622 Jul 31 14:36	10°  10'23	29.23916 AU	min. Earth dist.	4630 Aug 18 12:55	27°  40'50	29.18420 AU
direct	4622 Oct 19 23:03	8°  46'59		direct	4630 Nov 06 18:52	26°  17'24	
conjunction	4623 Feb 01 01:23	11°  16'01	0°43'40	conjunction	4631 Feb 18 05:08	28°  46'14	0°18'39
minimum elong	4623 Feb 01 01:23	11°  16'01	0°43'40	minimum elong	4631 Feb 18 05:07	28°  46'14	0°18'39
max. Earth dist.	4623 Jan 31 17:41	11°  15'17	31.23482 AU	max. Earth dist.	4631 Feb 18 02:37	28°  46'00	31.17937 AU
retrograde	4623 May 15 04:20	13°  44'20			4631 Mar 24 03:24	0° 	
opposition	4623 Aug 02 18:10	12°  21'38	0°45'05	retrograde	4631 Jun 02 02:37	1°  K  15'51	
min. Earth dist.	4623 Aug 03 01:24	12°  21'09	29.23116 AU		4631 Aug 16 14:53	30°  R 	
direct	4623 Oct 22 10:28	10°  57'40		opposition	4631 Aug 21 00:15	29°  52'52	0°18'09
				min. Earth dist.	4631 Aug 21 02:10	29°  52'45	29.17435 AU

direct	4631 Nov 09 05:20	28° 28 29'21		behind sun end	4638 Mar 05 06:57	14° 14 09'12	
	4632 Jan 25 08:29	0° 0		max. Earth dist.	4638 Mar 05 04:48	14° 14 09'00	31.10898 AU
				retrograde	4638 Jun 17 14:18	16° 16 39'15	
conjunction	4632 Feb 20 14:56	0° 0 58'07	0°15'21	opposition	4638 Sep 05 19:03	15° 15 15'40	0°-6'-57
minimum elong	4632 Feb 20 14:56	0° 0 58'07	0°15'22	min. Earth dist.	4638 Sep 05 14:41	15° 15 15'58	29.10528 AU
behind sun begin	4632 Feb 20 12:47	0° 0 57'55		direct	4638 Nov 24 12:52	13° 13 52'14	
behind sun end	4632 Feb 20 17:05	0° 0 58'19					
max. Earth dist.	4632 Feb 20 13:51	0° 0 58'01	31.16896 AU	conjunction	4639 Mar 07 10:38	16° 16 20'41	0°-8'-14
retrograde	4632 Jun 03 12:37	3° 3 27'51		minimum elong	4639 Mar 07 10:38	16° 16 20'41	0°08'15
opposition	4632 Aug 22 13:12	2° 2 04'47	0°14'36	behind sun begin	4639 Mar 07 04:56	16° 16 20'10	
min. Earth dist.	4632 Aug 22 13:58	2° 2 04'44	29.16334 AU	behind sun end	4639 Mar 07 16:19	16° 16 21'12	
direct	4632 Nov 10 17:25	0° 0 41'15		max. Earth dist.	4639 Mar 07 15:51	16° 16 21'09	31.10162 AU
				retrograde	4639 Jun 20 02:31	18° 18 51'27	
conjunction	4633 Feb 22 00:24	3° 3 09'56	0°12'02	opposition	4639 Sep 08 07:52	17° 17 27'51	0°-10'-33
minimum elong	4633 Feb 22 00:24	3° 3 09'56	0°12'02	min. Earth dist.	4639 Sep 08 01:44	17° 17 28'16	29.09793 AU
behind sun begin	4633 Feb 21 19:57	3° 3 09'32		direct	4639 Nov 27 01:21	16° 16 04'28	
behind sun end	4633 Feb 22 04:51	3° 3 10'20					
max. Earth dist.	4633 Feb 21 23:05	3° 3 09'49	31.15769 AU	conjunction	4640 Mar 08 20:31	18° 18 32'55	0°-11'-35
retrograde	4633 Jun 06 01:07	5° 5 39'49		minimum elong	4640 Mar 08 20:31	18° 18 32'55	0°11'35
opposition	4633 Aug 25 02:14	4° 4 16'37	0°11'02	behind sun begin	4640 Mar 08 15:53	18° 18 32'29	
min. Earth dist.	4633 Aug 25 02:21	4° 4 16'37	29.15200 AU	behind sun end	4640 Mar 09 01:10	18° 18 33'20	
direct	4633 Nov 13 03:09	2° 2 53'04		max. Earth dist.	4640 Mar 09 01:52	18° 18 33'24	31.09422 AU
				retrograde	4640 Jun 21 14:18	21° 21 03'53	
conjunction	4634 Feb 24 10:07	5° 5 21'41	0°08'42	opposition	4640 Sep 09 21:06	19° 19 40'15	0°-14'-8
minimum elong	4634 Feb 24 10:07	5° 5 21'41	0°08'43	min. Earth dist.	4640 Sep 09 15:08	19° 19 40'39	29.09049 AU
behind sun begin	4634 Feb 24 04:32	5° 5 21'10		direct	4640 Nov 28 11:46	18° 18 16'56	
behind sun end	4634 Feb 24 15:41	5° 5 22'11					
max. Earth dist.	4634 Feb 24 10:44	5° 5 21'44	31.14633 AU	conjunction	4641 Mar 11 06:34	20° 20 45'22	0°-14'-55
retrograde	4634 Jun 08 11:39	7° 7 51'40		minimum elong	4641 Mar 11 06:34	20° 20 45'22	0°14'57
opposition	4634 Aug 27 15:07	6° 6 28'23	0°07'27	behind sun begin	4641 Mar 11 03:59	20° 20 45'08	
min. Earth dist.	4634 Aug 27 14:27	6° 6 28'25	29.14084 AU	behind sun end	4641 Mar 11 09:09	20° 20 45'36	
direct	4634 Nov 15 15:35	5° 5 04'49		max. Earth dist.	4641 Mar 11 13:33	20° 20 46'01	31.08651 AU
				retrograde	4641 Jun 24 01:25	23° 23 16'31	
conjunction	4635 Feb 26 19:39	7° 7 33'22	0°05'22	opposition	4641 Sep 12 10:18	21° 21 52'51	0°-17'-43
minimum elong	4635 Feb 26 19:39	7° 7 33'22	0°05'21	min. Earth dist.	4641 Sep 12 03:13	21° 21 53'20	29.08235 AU
behind sun begin	4635 Feb 26 13:28	7° 7 32'48		direct	4641 Dec 01 00:04	20° 20 29'35	
behind sun end	4635 Feb 27 01:50	7° 7 33'55					
max. Earth dist.	4635 Feb 26 20:17	7° 7 33'24	31.13558 AU	conjunction	4642 Mar 13 16:43	22° 22 58'01	0°-18'-15
retrograde	4635 Jun 11 01:15	10° 10 03'29		minimum elong	4642 Mar 13 16:43	22° 22 58'01	0°18'15
opposition	4635 Aug 30 04:00	8° 8 40'06	0°03'51	max. Earth dist.	4642 Mar 13 23:11	22° 22 58'37	31.07791 AU
min. Earth dist.	4635 Aug 30 01:46	8° 8 40'15	29.13056 AU	retrograde	4642 Jun 26 14:51	25° 25 29'21	
direct	4635 Nov 18 01:56	7° 7 16'32		opposition	4642 Sep 14 23:29	24° 24 05'38	0°-21'-16
				min. Earth dist.	4642 Sep 14 16:10	24° 24 06'08	29.07330 AU
conjunction	4636 Feb 29 05:21	9° 9 45'02	0°01'59	direct	4642 Dec 03 09:50	22° 22 42'24	
minimum elong	4636 Feb 29 05:20	9° 9 45'02	0°02'00				
behind sun begin	4636 Feb 28 22:56	9° 9 44'28		conjunction	4643 Mar 16 03:08	25° 25 10'50	0°-21'-33
behind sun end	4636 Feb 29 11:44	9° 9 45'37		minimum elong	4643 Mar 16 03:07	25° 25 10'50	0°21'34
max. Earth dist.	4636 Feb 29 07:46	9° 9 45'13	31.12568 AU	max. Earth dist.	4643 Mar 16 10:59	25° 25 11'34	31.06810 AU
retrograde	4636 Jun 12 12:16	12° 12 15'19		retrograde	4643 Jun 29 01:54	27° 27 42'21	
opposition	4636 Aug 31 16:59	10° 10 51'51	0°00'15	opposition	4643 Sep 17 12:45	26° 26 18'34	0°-24'-47
min. Earth dist.	4636 Aug 31 14:32	10° 10 52'01	29.12118 AU	min. Earth dist.	4643 Sep 17 05:05	26° 26 19'05	29.06275 AU
desc. node	4636 Sep 26 14:13	10° 10 11'23		direct	4643 Dec 05 22:08	24° 24 55'21	
direct	4636 Nov 19 12:51	9° 9 28'19					
				conjunction	4644 Mar 17 13:22	27° 27 23'45	0°-24'-49
conjunction	4637 Mar 02 15:01	11° 11 56'47	0°-1'-28	minimum elong	4644 Mar 17 13:22	27° 27 23'45	0°24'50
minimum elong	4637 Mar 02 15:01	11° 11 56'47	0°01'30	max. Earth dist.	4644 Mar 17 20:43	27° 27 24'27	31.05696 AU
behind sun begin	4637 Mar 02 08:38	11° 11 56'12		retrograde	4644 Jun 30 15:47	29° 29 55'25	
behind sun end	4637 Mar 02 21:25	11° 11 57'21		opposition	4644 Sep 19 01:59	28° 28 31'33	0°-28'-15
max. Earth dist.	4637 Mar 02 18:05	11° 11 57'01	31.11695 AU	min. Earth dist.	4644 Sep 18 17:20	28° 28 32'09	29.05103 AU
retrograde	4637 Jun 15 01:40	14° 14 27'12		direct	4644 Dec 07 08:29	27° 27 08'20	
opposition	4637 Sep 03 05:56	13° 13 03'41	0°-3'-20				
min. Earth dist.	4637 Sep 03 01:27	13° 13 03'59	29.11290 AU	conjunction	4645 Mar 19 23:47	29° 29 36'42	0°-28'-3
direct	4637 Nov 22 01:08	11° 11 40'11		minimum elong	4645 Mar 19 23:47	29° 29 36'42	0°28'05
				max. Earth dist.	4645 Mar 20 08:25	29° 29 37'31	31.04469 AU
conjunction	4638 Mar 05 00:43	14° 14 08'39	0°-4'-52		4645 Mar 30 05:51	0° 0	
minimum elong	4638 Mar 05 00:42	14° 14 08'39	0°04'53	retrograde	4645 Jul 03 03:16	2° 2 08'31	
behind sun begin	4638 Mar 04 18:27	14° 14 08'05		opposition	4645 Sep 21 15:18	0° 0 44'33	0°-31'-42

min. Earth dist.	4645 Sep 21 06:51	0°Υ45'07	29.03848 AU	direct	4653 Dec 27 16:43	17°Υ07'11	
	4645 Oct 20 07:38	30°RϠ					
direct	4645 Dec 09 19:24	29°Ϡ21'19		conjunction	4654 Apr 08 22:54	19°Υ35'31	0°-54'-47
	4646 Jan 27 07:11	0°Υ		minimum elong	4654 Apr 08 22:53	19°Υ35'31	0°54'48
				max. Earth dist.	4654 Apr 09 14:24	19°Υ37'00	30.95607 AU
conjunction	4646 Mar 22 10:03	1°Υ49'38	0°-31'-14	retrograde	4654 Jul 23 21:18	22°Υ08'41	
minimum elong	4646 Mar 22 10:03	1°Υ49'38	0°31'15	opposition	4654 Oct 12 13:16	20°Υ44'10	-1°00'00
max. Earth dist.	4646 Mar 22 19:07	1°Υ50'30	31.03208 AU	min. Earth dist.	4654 Oct 11 22:28	20°Υ45'11	28.95229 AU
retrograde	4646 Jul 05 17:18	4°Υ21'34		direct	4654 Dec 30 03:31	19°Υ21'04	
opposition	4646 Sep 24 04:24	2°Υ57'30	0°-35'-5				
min. Earth dist.	4646 Sep 23 18:17	2°Υ58'12	29.02588 AU	conjunction	4655 Apr 11 10:04	21°Υ49'26	0°-57'-25
direct	4646 Dec 12 08:11	1°Υ34'14		minimum elong	4655 Apr 11 10:04	21°Υ49'26	0°57'26
				max. Earth dist.	4655 Apr 12 01:33	21°Υ50'54	30.94746 AU
conjunction	4647 Mar 24 20:25	4°Υ02'33	0°-34'-23	retrograde	4655 Jul 26 11:32	24°Υ22'43	
minimum elong	4647 Mar 24 20:25	4°Υ02'33	0°34'25	min. Earth dist.	4655 Oct 14 10:20	22°Υ59'15	28.94319 AU
max. Earth dist.	4647 Mar 25 06:14	4°Υ03'29	31.01954 AU	opposition	4655 Oct 15 02:17	22°Υ58'09	-1°-2'-46
retrograde	4647 Jul 08 06:30	6°Υ34'37		direct	4656 Jan 01 15:41	21°Υ35'02	
opposition	4647 Sep 26 17:28	5°Υ10'27	0°-38'-26				
min. Earth dist.	4647 Sep 26 07:34	5°Υ11'07	29.01378 AU	conjunction	4656 Apr 12 21:21	24°Υ03'25	0°-59'-57
direct	4647 Dec 14 20:04	3°Υ47'11		minimum elong	4656 Apr 12 21:21	24°Υ03'25	0°59'58
				max. Earth dist.	4656 Apr 13 12:58	24°Υ04'53	30.93773 AU
conjunction	4648 Mar 26 06:52	6°Υ15'28	0°-37'-29	retrograde	4656 Jul 28 00:47	26°Υ36'49	
minimum elong	4648 Mar 26 06:52	6°Υ15'28	0°37'29	opposition	4656 Oct 16 15:35	25°Υ12'10	-1°-5'-26
max. Earth dist.	4648 Mar 26 17:57	6°Υ16'31	31.00793 AU	min. Earth dist.	4656 Oct 16 00:22	25°Υ13'13	28.93301 AU
retrograde	4648 Jul 09 19:07	8°Υ47'41		direct	4657 Jan 03 02:58	23°Υ49'02	
opposition	4648 Sep 28 06:32	7°Υ23'26	0°-41'-43				
min. Earth dist.	4648 Sep 27 18:37	7°Υ24'15	29.00268 AU	conjunction	4657 Apr 15 08:36	26°Υ17'23	-1°-2'-24
direct	4648 Dec 16 08:48	6°Υ00'10		minimum elong	4657 Apr 15 08:36	26°Υ17'23	1°02'26
				max. Earth dist.	4657 Apr 16 00:58	26°Υ18'56	30.92715 AU
conjunction	4649 Mar 28 17:09	8°Υ28'27	0°-40'-32	retrograde	4657 Jul 30 14:13	28°Υ50'53	
minimum elong	4649 Mar 28 17:09	8°Υ28'27	0°40'33	opposition	4657 Oct 19 04:38	27°Υ26'09	-1°-8'00
max. Earth dist.	4649 Mar 29 04:29	8°Υ29'31	30.99733 AU	min. Earth dist.	4657 Oct 18 12:04	27°Υ27'17	28.92202 AU
retrograde	4649 Jul 12 07:28	11°Υ00'49		direct	4658 Jan 05 15:55	26°Υ02'58	
opposition	4649 Sep 30 19:45	9°Υ36'30	0°-44'-56				
min. Earth dist.	4649 Sep 30 07:48	9°Υ37'19	28.99277 AU	conjunction	4658 Apr 17 19:54	28°Υ31'18	-1°-4'-46
direct	4649 Dec 18 19:49	8°Υ13'15		minimum elong	4658 Apr 17 19:54	28°Υ31'18	1°04'47
				max. Earth dist.	4658 Apr 18 11:56	28°Υ32'49	30.91592 AU
conjunction	4650 Mar 31 03:47	10°Υ41'32	0°-43'-31		4658 May 29 07:34	0°Ϡ	
minimum elong	4650 Mar 31 03:46	10°Υ41'32	0°43'31	retrograde	4658 Aug 02 03:39	1°Ϡ04'53	
max. Earth dist.	4650 Mar 31 16:59	10°Υ42'47	30.98794 AU		4658 Oct 09 13:12	30°RΥ	
retrograde	4650 Jul 14 19:29	13°Υ14'03		opposition	4658 Oct 21 17:37	29°Υ40'03	-1°-10'-29
opposition	4650 Oct 03 08:39	11°Υ49'41	0°-48'-6	min. Earth dist.	4658 Oct 21 01:35	29°Υ41'09	28.91087 AU
min. Earth dist.	4650 Oct 02 19:21	11°Υ50'36	28.98383 AU	direct	4659 Jan 08 03:35	28°Υ16'49	
direct	4650 Dec 21 08:45	10°Υ26'28			4659 Mar 31 04:33	0°Ϡ	
conjunction	4651 Apr 02 14:19	12°Υ54'46	0°-46'-26	conjunction	4659 Apr 20 07:20	0°Ϡ45'09	-1°-7'-2
minimum elong	4651 Apr 02 14:19	12°Υ54'46	0°46'28	minimum elong	4659 Apr 20 07:20	0°Ϡ45'09	1°07'03
max. Earth dist.	4651 Apr 03 03:15	12°Υ56'00	30.97945 AU	max. Earth dist.	4659 Apr 21 00:55	0°Ϡ46'49	30.90487 AU
retrograde	4651 Jul 17 08:53	15°Υ27'27		retrograde	4659 Aug 04 16:33	3°Ϡ18'48	
opposition	4651 Oct 05 21:47	14°Υ03'03	0°-51'-11	opposition	4659 Oct 24 06:30	1°Ϡ53'53	-1°-12'-51
min. Earth dist.	4651 Oct 05 08:02	14°Υ03'59	28.97579 AU	min. Earth dist.	4659 Oct 23 13:19	1°Ϡ55'04	28.90011 AU
direct	4651 Dec 23 18:56	12°Υ39'52		direct	4660 Jan 10 17:15	0°Ϡ30'37	
conjunction	4652 Apr 04 01:01	15°Υ08'10	0°-49'-17	conjunction	4660 Apr 21 18:30	2°Ϡ58'56	-1°-9'-11
minimum elong	4652 Apr 04 01:01	15°Υ08'10	0°49'18	minimum elong	4660 Apr 21 18:29	2°Ϡ58'56	1°09'12
max. Earth dist.	4652 Apr 04 15:43	15°Υ09'34	30.97157 AU	max. Earth dist.	4660 Apr 22 11:43	3°Ϡ00'34	30.89455 AU
retrograde	4652 Jul 18 19:26	17°Υ41'01		retrograde	4660 Aug 06 05:43	5°Ϡ32'42	
opposition	4652 Oct 07 10:56	16°Υ16'35	0°-54'-12	opposition	4660 Oct 25 19:30	4°Ϡ07'42	-1°-15'-6
min. Earth dist.	4652 Oct 06 20:36	16°Υ17'34	28.96806 AU	min. Earth dist.	4660 Oct 25 02:01	4°Ϡ08'54	28.89047 AU
direct	4652 Dec 25 06:57	14°Υ53'27		direct	4661 Jan 12 04:02	2°Ϡ44'25	
conjunction	4653 Apr 06 11:50	17°Υ21'46	0°-52'-4	conjunction	4661 Apr 24 06:02	5°Ϡ12'45	-1°-11'-15
minimum elong	4653 Apr 06 11:50	17°Υ21'46	0°52'06	minimum elong	4661 Apr 24 06:02	5°Ϡ12'45	1°11'17
max. Earth dist.	4653 Apr 07 02:14	17°Υ23'07	30.96398 AU	max. Earth dist.	4661 Apr 25 00:57	5°Ϡ14'32	30.88545 AU
retrograde	4653 Jul 21 09:19	19°Υ54'46		retrograde	4661 Aug 08 16:45	7°Ϡ46'37	
min. Earth dist.	4653 Oct 09 08:49	18°Υ31'21	28.96049 AU	opposition	4661 Oct 28 08:19	6°Ϡ21'33	-1°-17'-15
opposition	4653 Oct 10 00:04	18°Υ30'18	0°-57'-9	min. Earth dist.	4661 Oct 27 14:10	6°Ϡ22'49	28.88209 AU

direct	4662 Jan 14 16:22	4°♄58'17		direct	4670 Feb 01 11:22	22°♄55'22	
conjunction	4662 Apr 26 17:29	7°♄26'38	-1°-13'-12	conjunction	4670 May 14 18:03	25°♄24'07	-1°-24'-40
minimum elong	4662 Apr 26 17:29	7°♄26'38	1°13'13	minimum elong	4670 May 14 18:03	25°♄24'07	1°24'41
max. Earth dist.	4662 Apr 27 12:07	7°♄28'24	30.87782 AU	max. Earth dist.	4670 May 15 15:20	25°♄26'08	30.83654 AU
retrograde	4662 Aug 11 06:46	10°♄00'37		retrograde	4670 Aug 29 19:00	27°♄58'50	
opposition	4662 Oct 30 21:07	8°♄35'31	-1°-19'-17	min. Earth dist.	4670 Nov 17 07:39	26°♄35'00	28.83392 AU
min. Earth dist.	4662 Oct 30 01:59	8°♄36'51	28.87520 AU	opposition	4670 Nov 18 03:22	26°♄33'37	-1°-31'-1
direct	4663 Jan 17 02:25	7°♄12'15		direct	4671 Feb 04 01:00	25°♄10'22	
conjunction	4663 Apr 29 05:06	9°♄40'39	-1°-15'-3	conjunction	4671 May 17 06:25	27°♄39'08	-1°-25'-32
minimum elong	4663 Apr 29 05:06	9°♄40'39	1°15'05	minimum elong	4671 May 17 06:25	27°♄39'08	1°25'34
max. Earth dist.	4663 Apr 30 01:01	9°♄42'32	30.87144 AU	max. Earth dist.	4671 May 18 02:50	27°♄41'04	30.82967 AU
retrograde	4663 Aug 13 18:24	12°♄14'45			4671 Aug 03 03:54	0°♄	
opposition	4663 Nov 02 09:55	10°♄49'39	-1°-21'-12	retrograde	4671 Sep 01 09:26	0°♄13'51	
min. Earth dist.	4663 Nov 01 14:57	10°♄50'58	28.86947 AU		4671 Sep 30 21:33	30°♄	
direct	4664 Jan 19 13:06	9°♄26'25		opposition	4671 Nov 20 15:53	28°♄48'34	-1°-31'-53
conjunction	4664 Apr 30 16:48	11°♄54'52	-1°-16'-47	min. Earth dist.	4671 Nov 19 19:45	28°♄49'59	28.82722 AU
minimum elong	4664 Apr 30 16:48	11°♄54'51	1°16'48	direct	4672 Feb 06 12:30	27°♄25'15	
max. Earth dist.	4664 May 01 12:59	11°♄56'46	30.86639 AU	conjunction	4672 May 18 18:56	29°♄54'01	-1°-26'-17
retrograde	4664 Aug 15 08:30	14°♄29'05		minimum elong	4672 May 18 18:56	29°♄54'01	1°26'18
opposition	4664 Nov 03 22:42	13°♄04'00	-1°-23'00	max. Earth dist.	4672 May 19 16:17	29°♄56'03	30.82315 AU
min. Earth dist.	4664 Nov 03 02:25	13°♄05'24	28.86491 AU		4672 May 21 10:04	0°♄	
direct	4665 Jan 21 00:29	11°♄40'47		retrograde	4672 Sep 02 20:20	2°♄28'45	
conjunction	4665 May 03 04:33	14°♄09'18	-1°-18'-24	min. Earth dist.	4672 Nov 21 08:43	1°♄04'48	28.82115 AU
minimum elong	4665 May 03 04:33	14°♄09'18	1°18'26	opposition	4672 Nov 22 04:24	1°♄03'25	-1°-32'-37
max. Earth dist.	4665 May 04 01:08	14°♄11'15	30.86208 AU	direct	4673 Jan 04 03:18	30°♄	
	4665 May 25 20:34	15°♄			4673 Feb 08 00:19	29°♄40'03	
retrograde	4665 Aug 17 21:37	16°♄43'39			4673 Mar 14 01:14	0°♄	
opposition	4665 Nov 06 11:37	15°♄18'34	-1°-24'-40	conjunction	4673 May 21 07:27	2°♄08'49	-1°-26'-54
min. Earth dist.	4665 Nov 05 16:07	15°♄19'55	28.86090 AU	minimum elong	4673 May 21 07:27	2°♄08'49	1°26'55
	4665 Nov 17 17:40	15°♄		max. Earth dist.	4673 May 22 04:43	2°♄10'50	30.81767 AU
direct	4666 Jan 23 10:36	13°♄55'23		retrograde	4673 Sep 05 09:20	4°♄43'34	
	4666 Mar 27 13:48	15°♄		opposition	4673 Nov 24 16:47	3°♄18'12	-1°-33'-12
conjunction	4666 May 05 16:41	16°♄23'58	-1°-19'-54	min. Earth dist.	4673 Nov 23 20:04	3°♄19'39	28.81624 AU
minimum elong	4666 May 05 16:40	16°♄23'58	1°19'55	direct	4674 Feb 10 11:46	1°♄54'46	
max. Earth dist.	4666 May 06 13:51	16°♄25'59	30.85821 AU	conjunction	4674 May 23 20:05	4°♄23'35	-1°-27'-23
retrograde	4666 Aug 20 11:55	18°♄58'26		minimum elong	4674 May 23 20:05	4°♄23'35	1°27'24
min. Earth dist.	4666 Nov 08 03:38	17°♄34'48	28.85694 AU	max. Earth dist.	4674 May 24 17:35	4°♄25'37	30.81327 AU
opposition	4666 Nov 09 00:13	17°♄33'22	-1°-26'-12	retrograde	4674 Sep 07 21:25	6°♄58'20	
direct	4667 Jan 25 22:41	16°♄10'12		min. Earth dist.	4674 Nov 26 09:12	5°♄34'20	28.81259 AU
conjunction	4667 May 08 04:49	18°♄38'52	-1°-21'-16	opposition	4674 Nov 27 05:05	5°♄32'57	-1°-33'-39
minimum elong	4667 May 08 04:49	18°♄38'52	1°21'18	direct	4675 Feb 12 21:41	4°♄09'29	
max. Earth dist.	4667 May 09 01:19	18°♄40'48	30.85397 AU	conjunction	4675 May 26 08:49	6°♄38'20	-1°-27'-44
retrograde	4667 Aug 23 02:39	21°♄13'26		minimum elong	4675 May 26 08:49	6°♄38'20	1°27'45
opposition	4667 Nov 11 13:09	19°♄48'21	-1°-27'-36	max. Earth dist.	4675 May 27 06:53	6°♄40'26	30.81038 AU
min. Earth dist.	4667 Nov 10 17:29	19°♄49'43	28.85249 AU	retrograde	4675 Sep 10 11:03	9°♄13'06	
direct	4668 Jan 28 10:21	18°♄25'12		opposition	4675 Nov 29 17:22	7°♄47'43	-1°-33'-57
conjunction	4668 May 09 17:07	20°♄53'55	-1°-22'-32	min. Earth dist.	4675 Nov 28 20:13	7°♄49'12	28.81033 AU
minimum elong	4668 May 09 17:07	20°♄53'55	1°22'33	direct	4676 Feb 15 09:51	6°♄24'15	
max. Earth dist.	4668 May 10 14:35	20°♄55'57	30.84906 AU	conjunction	4676 May 27 21:23	8°♄53'09	-1°-27'-57
retrograde	4668 Aug 24 17:00	23°♄28'34		minimum elong	4676 May 27 21:23	8°♄53'09	1°27'58
min. Earth dist.	4668 Nov 12 05:43	22°♄04'52	28.84705 AU	max. Earth dist.	4676 May 28 19:00	8°♄55'12	30.80876 AU
opposition	4668 Nov 13 01:59	22°♄03'27	-1°-28'-53	retrograde	4676 Sep 12 00:45	11°♄27'58	
direct	4669 Jan 30 00:23	20°♄40'17		min. Earth dist.	4676 Nov 30 09:27	10°♄04'00	28.80938 AU
conjunction	4669 May 12 05:30	23°♄09'02	-1°-23'-39	opposition	4676 Dec 01 05:49	10°♄02'35	-1°-34'-6
minimum elong	4669 May 12 05:30	23°♄09'02	1°23'41	direct	4677 Feb 16 20:52	8°♄39'06	
max. Earth dist.	4669 May 13 01:48	23°♄10'57	30.84317 AU	conjunction	4677 May 30 10:23	11°♄08'05	-1°-28'-1
retrograde	4669 Aug 27 06:35	25°♄43'44		minimum elong	4677 May 30 10:23	11°♄08'05	1°28'03
opposition	4669 Nov 15 14:44	24°♄18'35	-1°-30'-1	max. Earth dist.	4677 May 31 09:04	11°♄10'14	30.80835 AU
min. Earth dist.	4669 Nov 14 19:02	24°♄19'57	28.84081 AU	retrograde	4677 Sep 14 14:37	13°♄42'55	

opposition	4677 Dec 03 17:57	12°II17'34	-1°-34'-7		4686 Jan 03 00:50	30°RII	
min. Earth dist.	4677 Dec 02 20:58	12°II19'02	28.80930 AU	direct	4686 Mar 09 07:21	28°II56'45	
direct	4678 Feb 19 09:53	10°II54'06			4686 May 10 20:48	0°III	
conjunction	4678 Jun 01 23:23	13°II23'10	-1°-27'-58	conjunction	4686 Jun 20 10:40	1°III26'16	-1°-22'-42
minimum elong	4678 Jun 01 23:23	13°II23'10	1°28'00	minimum elong	4686 Jun 20 10:40	1°III26'16	1°22'44
max. Earth dist.	4678 Jun 02 20:55	13°II25'12	30.80859 AU	max. Earth dist.	4686 Jun 21 06:22	1°III28'08	30.79669 AU
retrograde	4678 Sep 17 05:09	15°II58'03		retrograde	4686 Oct 05 13:18	4°III00'54	
min. Earth dist.	4678 Dec 05 09:59	14°II34'09	28.80972 AU	opposition	4686 Dec 24 06:22	2°III35'37	-1°-27'-47
opposition	4678 Dec 06 06:16	14°II32'44	-1°-33'-58	min. Earth dist.	4686 Dec 23 12:30	2°III36'53	28.79729 AU
direct	4679 Feb 21 20:29	13°II09'17		direct	4687 Mar 11 19:57	1°III11'48	
conjunction	4679 Jun 04 12:33	15°II38'27	-1°-27'-46	conjunction	4687 Jun 22 23:57	3°III41'23	-1°-21'-28
minimum elong	4679 Jun 04 12:33	15°II38'27	1°27'48	minimum elong	4687 Jun 22 23:57	3°III41'23	1°21'29
max. Earth dist.	4679 Jun 05 10:57	15°II40'34	30.80889 AU	max. Earth dist.	4687 Jun 23 18:31	3°III43'07	30.79669 AU
retrograde	4679 Sep 19 18:51	18°II13'20		retrograde	4687 Oct 08 03:01	6°III15'57	
opposition	4679 Dec 08 18:30	16°II48'05	-1°-33'-41	opposition	4687 Dec 26 18:06	4°III50'40	-1°-26'-24
min. Earth dist.	4679 Dec 07 22:28	16°II49'29	28.80980 AU	min. Earth dist.	4687 Dec 26 00:49	4°III51'53	28.79807 AU
direct	4680 Feb 24 09:58	15°II24'38		direct	4688 Mar 13 06:33	3°III26'49	
conjunction	4680 Jun 06 01:50	17°II53'53	-1°-27'-26	conjunction	4688 Jun 24 13:35	5°III56'27	-1°-20'-6
minimum elong	4680 Jun 06 01:50	17°II53'53	1°27'28	minimum elong	4688 Jun 24 13:36	5°III56'27	1°20'08
max. Earth dist.	4680 Jun 06 22:45	17°II55'51	30.80874 AU	max. Earth dist.	4688 Jun 25 09:08	5°III58'17	30.79820 AU
retrograde	4680 Sep 21 10:10	20°II28'47		retrograde	4688 Oct 09 16:34	8°III30'57	
min. Earth dist.	4680 Dec 09 10:54	19°II04'57	28.80926 AU	opposition	4688 Dec 28 05:38	7°III05'43	-1°-24'-52
opposition	4680 Dec 10 06:45	19°II03'33	-1°-33'-16	min. Earth dist.	4688 Dec 27 12:24	7°III06'55	28.80025 AU
direct	4681 Feb 25 21:40	17°II40'06		direct	4689 Mar 15 20:22	5°III41'50	
conjunction	4681 Jun 08 15:19	20°II09'24	-1°-26'-58	conjunction	4689 Jun 27 03:08	8°III11'32	-1°-18'-37
minimum elong	4681 Jun 08 15:20	20°II09'24	1°27'00	minimum elong	4689 Jun 27 03:09	8°III11'32	1°18'39
max. Earth dist.	4681 Jun 09 12:29	20°II11'24	30.80760 AU	max. Earth dist.	4689 Jun 27 21:21	8°III13'15	30.80120 AU
retrograde	4681 Sep 23 21:56	22°II44'19		retrograde	4689 Oct 12 07:02	10°III45'59	
opposition	4681 Dec 12 19:01	21°II19'05	-1°-32'-42	opposition	4689 Dec 30 17:12	9°III20'47	-1°-23'-13
min. Earth dist.	4681 Dec 12 00:15	21°II20'24	28.80756 AU	min. Earth dist.	4689 Dec 29 23:59	9°III21'59	28.80385 AU
direct	4682 Feb 28 09:56	19°II55'36		direct	4690 Mar 18 08:16	7°III56'53	
conjunction	4682 Jun 11 04:49	22°II24'57	-1°-26'-22	conjunction	4690 Jun 29 16:54	10°III26'40	-1°-17'-1
minimum elong	4682 Jun 11 04:49	22°II24'57	1°26'24	minimum elong	4690 Jun 29 16:54	10°III26'40	1°17'02
max. Earth dist.	4682 Jun 12 00:57	22°II26'51	30.80556 AU	max. Earth dist.	4690 Jun 30 11:39	10°III28'26	30.80526 AU
retrograde	4682 Sep 26 11:31	24°II59'48		retrograde	4690 Oct 14 19:18	13°III01'03	
min. Earth dist.	4682 Dec 14 11:56	23°II35'55	28.80509 AU	opposition	4691 Jan 02 04:41	11°III35'55	-1°-21'-26
opposition	4682 Dec 15 06:59	23°II34'35	-1°-31'-59	min. Earth dist.	4691 Jan 01 12:27	11°III37'04	28.80826 AU
direct	4683 Mar 02 21:44	22°II11'02		direct	4691 Mar 20 20:18	10°III12'02	
conjunction	4683 Jun 13 18:16	24°II40'26	-1°-25'-39	conjunction	4691 Jul 02 06:40	12°III41'53	-1°-15'-17
minimum elong	4683 Jun 13 18:16	24°II40'26	1°25'40	minimum elong	4691 Jul 02 06:41	12°III41'53	1°15'18
max. Earth dist.	4683 Jun 14 14:08	24°II42'18	30.80281 AU	max. Earth dist.	4691 Jul 03 00:22	12°III43'33	30.81008 AU
retrograde	4683 Sep 28 23:43	27°II15'15		retrograde	4691 Oct 17 10:08	15°III16'13	
opposition	4683 Dec 17 19:06	25°II50'00	-1°-31'-8	opposition	4692 Jan 04 16:09	13°III51'08	-1°-19'-31
min. Earth dist.	4683 Dec 17 01:23	25°II51'15	28.80228 AU	min. Earth dist.	4692 Jan 03 23:42	13°III52'18	28.81314 AU
direct	4684 Mar 04 07:51	24°II26'23		direct	4692 Mar 22 08:24	12°III27'14	
conjunction	4684 Jun 15 07:38	26°II55'49	-1°-24'-48	conjunction	4692 Jul 03 20:32	14°III57'11	-1°-13'-26
minimum elong	4684 Jun 15 07:38	26°II55'49	1°24'49	minimum elong	4692 Jul 03 20:32	14°III57'11	1°13'28
max. Earth dist.	4684 Jun 16 03:29	26°II57'41	30.80016 AU	max. Earth dist.	4692 Jul 04 13:51	14°III58'48	30.81481 AU
retrograde	4684 Sep 30 12:17	29°II30'34		retrograde	4692 Oct 18 22:32	17°III31'27	
opposition	4684 Dec 19 06:56	28°II05'18	-1°-30'-9	opposition	4693 Jan 06 03:47	16°III06'25	-1°-17'-29
min. Earth dist.	4684 Dec 18 12:29	28°II06'36	28.79974 AU	min. Earth dist.	4693 Jan 05 13:02	16°III07'28	28.81764 AU
direct	4685 Mar 06 20:28	26°II41'37		direct	4693 Mar 24 19:13	14°III42'30	
conjunction	4685 Jun 17 21:05	29°II11'05	-1°-23'-49	conjunction	4693 Jul 06 10:40	17°III12'30	-1°-11'-29
minimum elong	4685 Jun 17 21:05	29°II11'05	1°23'50	minimum elong	4693 Jul 06 10:40	17°III12'30	1°11'30
max. Earth dist.	4685 Jun 18 16:04	29°II12'53	30.79791 AU	max. Earth dist.	4693 Jul 07 03:11	17°III14'03	30.81904 AU
	4685 Jul 09 20:43	0°III		retrograde	4693 Oct 21 11:05	19°III46'40	
retrograde	4685 Oct 03 00:29	1°III45'47		opposition	4694 Jan 08 15:06	18°III21'41	-1°-15'-20
opposition	4685 Dec 21 18:43	0°III20'30	-1°-29'-2	min. Earth dist.	4694 Jan 08 00:09	18°III22'45	28.82135 AU
min. Earth dist.	4685 Dec 21 01:26	0°III21'43	28.79798 AU	direct	4694 Mar 27 07:51	16°III57'43	

conjunction	4694 Jul 09 00:42	19° $\overline{52}$ 27'46	-1°-9'-25	conjunction	4702 Jul 28 16:07	7° $\overline{02}$ 25'34	0°-49'-31
minimum elong	4694 Jul 09 00:42	19° $\overline{52}$ 27'46	1°09'27	minimum elong	4702 Jul 28 16:07	7° $\overline{02}$ 25'34	0°49'33
max. Earth dist.	4694 Jul 09 15:47	19° $\overline{52}$ 29'11	30.82231 AU	max. Earth dist.	4702 Jul 29 03:09	7° $\overline{02}$ 26'36	30.85902 AU
retrograde	4694 Oct 23 22:55	22° $\overline{50}$ 01'50		retrograde	4702 Nov 12 04:27	9° $\overline{02}$ 58'39	
opposition	4695 Jan 11 02:38	20° $\overline{53}$ 36'53	-1°-13'-5	opposition	4703 Jan 29 18:48	8° $\overline{02}$ 34'01	0°-51'-24
min. Earth dist.	4695 Jan 10 13:20	20° $\overline{53}$ 37'49	28.82426 AU	min. Earth dist.	4703 Jan 29 08:37	8° $\overline{02}$ 34'44	28.86395 AU
direct	4695 Mar 29 18:20	19° $\overline{52}$ 12'51		direct	4703 Apr 17 19:07	7° $\overline{02}$ 09'39	
conjunction	4695 Jul 11 14:39	21° $\overline{54}$ 42'56	-1°-7'-16	conjunction	4703 Jul 31 05:54	9° $\overline{02}$ 40'12	0°-46'-39
minimum elong	4695 Jul 11 14:40	21° $\overline{54}$ 42'56	1°07'17	minimum elong	4703 Jul 31 05:55	9° $\overline{02}$ 40'12	0°46'40
max. Earth dist.	4695 Jul 12 05:47	21° $\overline{54}$ 44'21	30.82497 AU	max. Earth dist.	4703 Jul 31 15:58	9° $\overline{02}$ 41'08	30.86860 AU
retrograde	4695 Oct 26 11:12	24° $\overline{50}$ 16'52		retrograde	4703 Nov 14 16:29	12° $\overline{02}$ 13'11	
opposition	4696 Jan 13 13:55	22° $\overline{55}$ 51'55	-1°-10'-43	opposition	4704 Feb 01 05:46	10° $\overline{02}$ 48'39	0°-48'-18
min. Earth dist.	4696 Jan 13 00:33	22° $\overline{55}$ 52'52	28.82659 AU	min. Earth dist.	4704 Jan 31 21:08	10° $\overline{02}$ 49'16	28.87384 AU
direct	4696 Mar 31 06:48	21° $\overline{54}$ 27'49		direct	4704 Apr 19 04:49	9° $\overline{02}$ 24'19	
conjunction	4696 Jul 13 04:35	23° $\overline{56}$ 57'56	-1°-5'00	conjunction	4704 Aug 01 20:04	11° $\overline{02}$ 54'57	0°-43'-42
minimum elong	4696 Jul 13 04:35	23° $\overline{56}$ 57'56	1°05'02	minimum elong	4704 Aug 01 20:04	11° $\overline{02}$ 54'57	0°43'45
max. Earth dist.	4696 Jul 13 18:02	23° $\overline{56}$ 59'12	30.82730 AU	max. Earth dist.	4704 Aug 02 05:59	11° $\overline{02}$ 55'52	30.87862 AU
retrograde	4696 Oct 27 23:47	26° $\overline{53}$ 31'45		retrograde	4704 Nov 16 04:42	14° $\overline{02}$ 27'50	
opposition	4697 Jan 15 01:07	25° $\overline{50}$ 06'48	-1°-8'-14	opposition	4705 Feb 02 16:27	13° $\overline{02}$ 03'24	0°-45'-7
min. Earth dist.	4697 Jan 14 12:55	25° $\overline{50}$ 07'40	28.82901 AU	min. Earth dist.	4705 Feb 02 08:00	13° $\overline{02}$ 04'00	28.88365 AU
direct	4697 Apr 02 17:38	23° $\overline{54}$ 42'37		direct	4705 Apr 21 16:13	11° $\overline{02}$ 39'04	
conjunction	4697 Jul 15 18:40	26° $\overline{52}$ 12'47	-1°-2'-38	conjunction	4705 Aug 04 10:13	14° $\overline{02}$ 09'46	0°-40'-42
minimum elong	4697 Jul 15 18:40	26° $\overline{52}$ 12'47	1°02'40	minimum elong	4705 Aug 04 10:13	14° $\overline{02}$ 09'46	0°40'43
max. Earth dist.	4697 Jul 16 08:37	26° $\overline{52}$ 14'05	30.82987 AU	max. Earth dist.	4705 Aug 04 18:08	14° $\overline{02}$ 10'30	30.88818 AU
retrograde	4697 Oct 30 12:00	28° $\overline{50}$ 46'27			4705 Aug 27 05:54	15° $\overline{02}$	
opposition	4698 Jan 17 12:13	27° $\overline{52}$ 21'31	-1°-5'-40	retrograde	4705 Nov 18 16:25	16° $\overline{02}$ 42'33	
min. Earth dist.	4698 Jan 17 00:25	27° $\overline{52}$ 22'21	28.83175 AU	opposition	4706 Feb 05 03:24	15° $\overline{02}$ 18'12	0°-41'-52
direct	4698 Apr 05 07:15	25° $\overline{50}$ 57'16		min. Earth dist.	4706 Feb 04 20:23	15° $\overline{02}$ 18'42	28.89288 AU
conjunction	4698 Jul 18 08:28	28° $\overline{52}$ 27'28	-1°00'-11		4706 Feb 15 22:33	15° $\overline{02}$	
minimum elong	4698 Jul 18 08:29	28° $\overline{52}$ 27'28	1°00'13	direct	4706 Apr 24 02:57	13° $\overline{02}$ 53'51	
max. Earth dist.	4698 Jul 18 20:45	28° $\overline{52}$ 28'37	30.83308 AU		4706 Jun 27 23:43	15° $\overline{02}$	
	4698 Aug 31 11:32	0° $\overline{02}$		conjunction	4706 Aug 07 00:25	16° $\overline{02}$ 24'36	0°-37'-38
retrograde	4698 Nov 02 01:28	1° $\overline{02}$ 01'00		minimum elong	4706 Aug 07 00:25	16° $\overline{02}$ 24'36	0°37'40
	4699 Jan 05 16:52	30° $\overline{02}$		max. Earth dist.	4706 Aug 07 08:21	16° $\overline{02}$ 25'21	30.89689 AU
opposition	4699 Jan 19 23:12	29° $\overline{53}$ 36'06	-1°-3'00	retrograde	4706 Nov 21 03:33	18° $\overline{02}$ 57'15	
min. Earth dist.	4699 Jan 19 11:36	29° $\overline{53}$ 36'55	28.83549 AU	opposition	4707 Feb 07 14:13	17° $\overline{02}$ 32'58	0°-38'-33
direct	4699 Apr 07 19:04	28° $\overline{52}$ 11'47		min. Earth dist.	4707 Feb 07 08:02	17° $\overline{02}$ 33'24	28.90102 AU
	4699 Jul 01 23:26	0° $\overline{02}$		direct	4707 Apr 26 15:57	16° $\overline{02}$ 08'34	
conjunction	4699 Jul 20 22:24	0° $\overline{02}$ 42'02	0°-57'-39	conjunction	4707 Aug 09 14:28	18° $\overline{02}$ 39'22	0°-34'-31
minimum elong	4699 Jul 20 22:25	0° $\overline{02}$ 42'02	0°57'40	minimum elong	4707 Aug 09 14:29	18° $\overline{02}$ 39'22	0°34'32
max. Earth dist.	4699 Jul 21 11:10	0° $\overline{02}$ 43'14	30.83736 AU	max. Earth dist.	4707 Aug 09 20:09	18° $\overline{02}$ 39'53	30.90470 AU
retrograde	4699 Nov 04 13:29	3° $\overline{02}$ 15'27		retrograde	4707 Nov 23 16:40	21° $\overline{02}$ 11'51	
opposition	4700 Jan 22 10:12	1° $\overline{02}$ 50'35	-1°00'-14	opposition	4708 Feb 10 00:58	19° $\overline{02}$ 47'36	0°-35'-11
min. Earth dist.	4700 Jan 21 23:30	1° $\overline{02}$ 51'20	28.84042 AU	min. Earth dist.	4708 Feb 09 19:25	19° $\overline{02}$ 47'59	28.90846 AU
direct	4700 Apr 10 07:19	0° $\overline{02}$ 26'14		direct	4708 Apr 28 03:14	18° $\overline{02}$ 23'08	
conjunction	4700 Jul 23 12:11	2° $\overline{02}$ 56'32	0°-55'-1	conjunction	4708 Aug 11 04:38	20° $\overline{02}$ 53'58	0°-31'-21
minimum elong	4700 Jul 23 12:12	2° $\overline{02}$ 56'32	0°55'03	minimum elong	4708 Aug 11 04:38	20° $\overline{02}$ 53'58	0°31'22
max. Earth dist.	4700 Jul 23 23:50	2° $\overline{02}$ 57'38	30.84315 AU	max. Earth dist.	4708 Aug 11 10:16	20° $\overline{02}$ 54'29	30.91176 AU
retrograde	4700 Nov 07 04:07	5° $\overline{02}$ 29'50		retrograde	4708 Nov 25 04:04	23° $\overline{02}$ 26'16	
opposition	4701 Jan 24 21:06	4° $\overline{02}$ 05'01	0°-57'-23	opposition	4709 Feb 11 11:43	22° $\overline{02}$ 02'03	0°-31'-47
min. Earth dist.	4701 Jan 24 10:01	4° $\overline{02}$ 05'48	28.84690 AU	min. Earth dist.	4709 Feb 11 07:36	22° $\overline{02}$ 02'21	28.91520 AU
direct	4701 Apr 12 19:54	2° $\overline{02}$ 40'39		direct	4709 Apr 30 16:04	20° $\overline{02}$ 37'32	
conjunction	4701 Jul 26 02:10	5° $\overline{02}$ 11'02	0°-52'-19	conjunction	4709 Aug 13 18:39	23° $\overline{02}$ 08'22	0°-28'-8
minimum elong	4701 Jul 26 02:10	5° $\overline{02}$ 11'02	0°52'20	minimum elong	4709 Aug 13 18:39	23° $\overline{02}$ 08'22	0°28'08
max. Earth dist.	4701 Jul 26 13:44	5° $\overline{02}$ 12'06	30.85032 AU	max. Earth dist.	4709 Aug 13 22:30	23° $\overline{02}$ 08'44	30.91848 AU
retrograde	4701 Nov 09 15:50	7° $\overline{02}$ 44'13		retrograde	4709 Nov 27 17:50	25° $\overline{02}$ 40'29	
opposition	4702 Jan 27 07:59	6° $\overline{02}$ 19'28	0°-54'-26	opposition	4710 Feb 13 22:11	24° $\overline{02}$ 16'17	0°-28'-19
min. Earth dist.	4702 Jan 26 22:18	6° $\overline{02}$ 20'10	28.85480 AU	min. Earth dist.	4710 Feb 13 18:07	24° $\overline{02}$ 16'34	28.92185 AU
direct	4702 Apr 15 06:49	4° $\overline{02}$ 55'07		direct	4710 May 03 05:41	22° $\overline{02}$ 51'42	

conjunction	4710 Aug 16 08:39	25° Ω 22'33	0°-24'-53	direct	4717 May 18 13:49	8° η 27'10	
minimum elong	4710 Aug 16 08:39	25° Ω 22'33	0°24'55				
max. Earth dist.	4710 Aug 16 12:14	25° Ω 22'53	30.92516 AU	conjunction	4717 Sep 01 08:55	10° η 58'18	0°-1'-26
retrograde	4710 Nov 30 04:38	27° Ω 54'29		minimum elong	4717 Sep 01 08:55	10° η 58'18	0°01'27
opposition	4711 Feb 16 08:51	26° Ω 30'18	0°-24'-50	behind sun begin	4717 Sep 01 02:19	10° η 57'43	
min. Earth dist.	4711 Feb 16 06:25	26° Ω 30'28	28.92878 AU	behind sun end	4717 Sep 01 15:31	10° η 58'53	
direct	4711 May 05 17:41	25° Ω 05'39		max. Earth dist.	4717 Sep 01 07:44	10° η 58'15	30.99615 AU
				retrograde	4717 Dec 15 13:04	13° η 29'13	
conjunction	4711 Aug 18 22:21	27° Ω 36'30	0°-21'-36	asc. node	4718 Jan 31 11:49	12° η 54'33	
minimum elong	4711 Aug 18 22:21	27° Ω 36'30	0°21'37	opposition	4718 Mar 03 09:51	12° η 05'34	0°00'18
max. Earth dist.	4711 Aug 19 01:10	27° Ω 36'46	30.93249 AU	min. Earth dist.	4718 Mar 03 11:54	12° η 05'26	29.00178 AU
	4711 Nov 10 12:51	0° η		direct	4718 May 21 02:07	10° η 40'52	
retrograde	4711 Dec 02 17:18	0° η 08'15					
	4711 Dec 24 22:37	30° $\mathcal{R}\Omega$		conjunction	4718 Sep 03 22:36	13° η 12'03	0°02'03
opposition	4712 Feb 18 19:17	28° Ω 44'06	0°-21'-18	minimum elong	4718 Sep 03 22:37	13° η 12'03	0°02'03
min. Earth dist.	4712 Feb 18 16:26	28° Ω 44'18	28.93644 AU	behind sun begin	4718 Sep 03 16:01	13° η 11'28	
direct	4712 May 07 06:39	27° Ω 19'24		behind sun end	4718 Sep 04 05:13	13° η 12'38	
				max. Earth dist.	4718 Sep 03 19:25	13° η 11'48	31.00718 AU
conjunction	4712 Aug 20 12:10	29° Ω 50'16	0°-18'-17	retrograde	4718 Dec 18 02:29	15° η 42'49	
minimum elong	4712 Aug 20 12:10	29° Ω 50'16	0°18'19	opposition	4719 Mar 05 20:17	14° η 19'16	0°03'56
max. Earth dist.	4712 Aug 20 14:03	29° Ω 50'26	30.94059 AU	min. Earth dist.	4719 Mar 05 22:28	14° η 19'06	29.01229 AU
	4712 Aug 24 20:55	0° η		direct	4719 May 23 15:17	12° η 54'32	
retrograde	4712 Dec 04 05:01	2° η 21'50					
opposition	4713 Feb 20 05:44	0° η 57'44	0°-17'-45	conjunction	4719 Sep 06 12:16	15° η 25'46	0°05'27
min. Earth dist.	4713 Feb 20 04:18	0° η 57'50	28.94518 AU	minimum elong	4719 Sep 06 12:16	15° η 25'46	0°05'27
	4713 Mar 29 14:48	30° $\mathcal{R}\Omega$		behind sun begin	4719 Sep 06 05:55	15° η 25'12	
direct	4713 May 09 17:17	29° Ω 32'59		behind sun end	4719 Sep 06 18:37	15° η 26'20	
	4713 Jun 19 05:26	0° η		max. Earth dist.	4719 Sep 06 08:34	15° η 25'28	31.01702 AU
				retrograde	4719 Dec 20 13:09	17° η 56'24	
conjunction	4713 Aug 23 02:01	2° η 03'53	0°-14'-57	opposition	4720 Mar 07 06:50	16° η 32'54	0°07'33
minimum elong	4713 Aug 23 02:01	2° η 03'53	0°14'58	min. Earth dist.	4720 Mar 07 11:00	16° η 32'36	29.02158 AU
behind sun begin	4713 Aug 22 23:54	2° η 03'42		direct	4720 May 25 03:19	15° η 08'10	
behind sun end	4713 Aug 23 04:09	2° η 04'04					
max. Earth dist.	4713 Aug 23 03:51	2° η 04'03	30.94997 AU	conjunction	4720 Sep 08 01:59	17° η 39'25	0°08'49
retrograde	4713 Dec 06 16:13	4° η 35'17		minimum elong	4720 Sep 08 01:59	17° η 39'25	0°08'48
opposition	4714 Feb 22 16:09	3° η 11'15	0°-14'-10	behind sun begin	4720 Sep 07 20:20	17° η 38'54	
min. Earth dist.	4714 Feb 22 14:30	3° η 11'22	28.95510 AU	behind sun end	4720 Sep 08 07:38	17° η 39'55	
direct	4714 May 12 05:23	1° η 46'29		max. Earth dist.	4720 Sep 07 20:56	17° η 38'58	31.02585 AU
				retrograde	4720 Dec 22 01:53	20° η 09'52	
conjunction	4714 Aug 25 15:34	4° η 17'25	0°-11'-36	opposition	4721 Mar 09 17:03	18° η 46'25	0°11'09
minimum elong	4714 Aug 25 15:34	4° η 17'25	0°11'38	min. Earth dist.	4721 Mar 09 21:12	18° η 46'08	29.02987 AU
behind sun begin	4714 Aug 25 10:57	4° η 17'01		direct	4721 May 27 16:38	17° η 21'38	
behind sun end	4714 Aug 25 20:11	4° η 17'50					
max. Earth dist.	4714 Aug 25 15:58	4° η 17'27	30.96052 AU	conjunction	4721 Sep 10 15:35	19° η 52'54	0°12'10
retrograde	4714 Dec 09 03:05	6° η 48'42		minimum elong	4721 Sep 10 15:35	19° η 52'54	0°12'10
opposition	4715 Feb 25 02:38	5° η 24'45	0°-10'-34	behind sun begin	4721 Sep 10 11:14	19° η 52'31	
min. Earth dist.	4715 Feb 25 01:56	5° η 24'47	28.96629 AU	behind sun end	4721 Sep 10 19:56	19° η 53'17	
direct	4715 May 14 15:40	3° η 59'59		max. Earth dist.	4721 Sep 10 09:19	19° η 52'20	31.03369 AU
				retrograde	4721 Dec 24 13:45	22° η 23'12	
conjunction	4715 Aug 28 05:22	6° η 30'59	0°-8'-14	opposition	4722 Mar 12 03:28	20° η 59'46	0°14'44
minimum elong	4715 Aug 28 05:22	6° η 30'59	0°08'15	min. Earth dist.	4722 Mar 12 09:20	20° η 59'22	29.03750 AU
behind sun begin	4715 Aug 27 23:33	6° η 30'28		direct	4722 May 30 04:06	19° η 34'57	
behind sun end	4715 Aug 28 11:10	6° η 31'30					
max. Earth dist.	4715 Aug 28 06:12	6° η 31'03	30.97220 AU	conjunction	4722 Sep 13 04:57	22° η 06'13	0°15'29
retrograde	4715 Dec 11 13:33	9° η 02'07		minimum elong	4722 Sep 13 04:56	22° η 06'13	0°15'29
opposition	4716 Feb 27 12:59	7° η 38'17	0°-6'-56	behind sun begin	4722 Sep 13 03:38	22° η 06'06	
min. Earth dist.	4716 Feb 27 12:55	7° η 38'17	28.97822 AU	behind sun end	4722 Sep 13 06:14	22° η 06'19	
direct	4716 May 16 03:25	6° η 13'32		max. Earth dist.	4722 Sep 12 22:20	22° η 05'37	31.04115 AU
				retrograde	4722 Dec 27 00:08	24° η 36'19	
conjunction	4716 Aug 29 19:01	8° η 44'36	0°-4'-52	opposition	4723 Mar 14 13:43	23° η 12'56	0°18'17
minimum elong	4716 Aug 29 19:02	8° η 44'36	0°04'53	min. Earth dist.	4723 Mar 14 19:36	23° η 12'31	29.04482 AU
behind sun begin	4716 Aug 29 12:36	8° η 44'02		direct	4723 Jun 01 17:02	21° η 48'03	
behind sun end	4716 Aug 30 01:27	8° η 45'10					
max. Earth dist.	4716 Aug 29 17:52	8° η 44'31	30.98435 AU	conjunction	4723 Sep 15 18:11	24° η 19'18	0°18'48
retrograde	4716 Dec 13 02:16	11° η 15'38		minimum elong	4723 Sep 15 18:11	24° η 19'18	0°18'48
opposition	4717 Feb 28 23:23	9° η 51'53	0°-3'-19	max. Earth dist.	4723 Sep 15 10:02	24° η 18'33	31.04853 AU
min. Earth dist.	4717 Feb 28 23:53	9° η 51'51	28.99035 AU	retrograde	4723 Dec 29 10:11	26° η 49'14	

opposition	4724 Mar 15 23:52	25° 17 25'53	0°21'48	opposition	4732 Apr 02 09:38	13° 05 05'46	0°48'18
min. Earth dist.	4724 Mar 16 06:50	25° 17 25'23	29.05250 AU	min. Earth dist.	4732 Apr 02 21:02	13° 05 04'58	29.13807 AU
direct	4724 Jun 03 03:42	24° 17 00'57		direct	4732 Jun 21 03:05	11° 05 40'50	
conjunction	4724 Sep 17 07:30	26° 17 32'11	0°22'04	conjunction	4732 Oct 05 14:53	14° 05 12'10	0°46'40
minimum elong	4724 Sep 17 07:30	26° 17 32'11	0°22'04	minimum elong	4732 Oct 05 14:52	14° 05 12'10	0°46'39
max. Earth dist.	4724 Sep 16 23:46	26° 17 31'29	31.05643 AU	max. Earth dist.	4732 Oct 05 00:32	14° 05 10'50	31.14241 AU
retrograde	4724 Dec 30 19:32	29° 17 01'56		retrograde	4733 Jan 17 11:22	16° 05 40'50	
opposition	4725 Mar 18 10:06	27° 17 38'37	0°25'17	opposition	4733 Apr 04 20:01	15° 05 18'03	0°51'20
min. Earth dist.	4725 Mar 18 17:34	27° 17 38'05	29.06073 AU	min. Earth dist.	4733 Apr 05 08:34	15° 05 17'10	29.14710 AU
direct	4725 Jun 05 15:25	26° 17 13'38		direct	4733 Jun 23 13:58	13° 05 53'05	
conjunction	4725 Sep 19 20:30	28° 17 44'52	0°25'18	conjunction	4733 Oct 08 03:36	16° 05 24'24	0°49'28
minimum elong	4725 Sep 19 20:30	28° 17 44'52	0°25'19	minimum elong	4733 Oct 08 03:35	16° 05 24'24	0°49'29
max. Earth dist.	4725 Sep 19 11:08	28° 17 44'01	31.06516 AU	max. Earth dist.	4733 Oct 07 13:28	16° 05 23'05	31.15083 AU
	4725 Oct 25 02:59	0° 05		retrograde	4734 Jan 19 20:36	18° 05 52'55	
retrograde	4726 Jan 02 06:50	1° 05 14'28		opposition	4734 Apr 07 06:20	17° 05 30'10	0°54'18
	4726 Mar 15 14:41	30° 05 11'11	0°28'44	min. Earth dist.	4734 Apr 07 19:40	17° 05 29'14	29.15499 AU
opposition	4726 Mar 20 20:14	29° 05 51'11	0°28'44	direct	4734 Jun 26 02:12	16° 05 05'11	
min. Earth dist.	4726 Mar 21 03:44	29° 05 50'40	29.07014 AU				
direct	4726 Jun 08 01:27	28° 05 26'11		conjunction	4734 Oct 10 16:03	18° 05 36'28	0°52'12
	4726 Aug 26 22:37	0° 05		minimum elong	4734 Oct 10 16:03	18° 05 36'28	0°52'12
conjunction	4726 Sep 22 09:37	0° 05 57'25	0°28'31	max. Earth dist.	4734 Oct 10 00:06	18° 05 34'59	31.15838 AU
minimum elong	4726 Sep 22 09:36	0° 05 57'25	0°28'30	retrograde	4735 Jan 22 07:26	21° 05 04'51	
max. Earth dist.	4726 Sep 22 00:49	0° 05 56'36	31.07513 AU	opposition	4735 Apr 09 16:33	19° 05 42'07	0°57'10
retrograde	4727 Jan 04 15:47	3° 05 26'52		min. Earth dist.	4735 Apr 10 06:06	19° 05 41'10	29.16237 AU
opposition	4727 Mar 23 06:30	2° 05 03'39	0°32'08	direct	4735 Jun 28 12:40	18° 05 17'05	
min. Earth dist.	4727 Mar 23 14:58	2° 05 03'03	29.08075 AU	conjunction	4735 Oct 13 04:31	20° 05 48'21	0°54'50
direct	4727 Jun 10 13:29	0° 05 38'39		minimum elong	4735 Oct 13 04:31	20° 05 48'21	0°54'51
conjunction	4727 Sep 24 22:24	3° 05 09'54	0°31'40	max. Earth dist.	4735 Oct 12 13:01	20° 05 46'55	31.16548 AU
minimum elong	4727 Sep 24 22:24	3° 05 09'53	0°31'41	retrograde	4736 Jan 24 15:40	23° 05 16'35	
max. Earth dist.	4727 Sep 24 12:13	3° 05 08'57	31.08642 AU	opposition	4736 Apr 11 02:51	21° 05 53'53	0°59'57
retrograde	4728 Jan 07 03:50	5° 05 39'13		min. Earth dist.	4736 Apr 11 17:37	21° 05 52'51	29.16937 AU
opposition	4728 Mar 24 16:37	4° 05 16'04	0°35'29	direct	4736 Jun 30 00:44	20° 05 28'50	
min. Earth dist.	4728 Mar 25 00:44	4° 05 15'30	29.09248 AU	conjunction	4736 Oct 14 16:45	23° 05 00'03	0°57'25
direct	4728 Jun 12 01:42	2° 05 51'05		minimum elong	4736 Oct 14 16:45	23° 05 00'03	0°57'24
conjunction	4728 Sep 26 11:28	5° 05 22'22	0°34'47	max. Earth dist.	4736 Oct 13 23:49	22° 05 58'29	31.17256 AU
minimum elong	4728 Sep 26 11:28	5° 05 22'22	0°34'46	retrograde	4737 Jan 26 02:40	25° 05 28'09	
max. Earth dist.	4728 Sep 26 01:19	5° 05 21'25	31.09840 AU	opposition	4737 Apr 13 12:57	24° 05 05'28	1°02'39
retrograde	4729 Jan 08 13:59	7° 05 51'34		min. Earth dist.	4737 Apr 14 03:15	24° 05 04'28	29.17665 AU
opposition	4729 Mar 27 02:49	6° 05 28'30	0°38'47	direct	4737 Jul 02 12:34	22° 05 40'23	
min. Earth dist.	4729 Mar 27 12:38	6° 05 27'49	29.10467 AU	conjunction	4737 Oct 17 05:00	25° 05 11'36	0°59'54
direct	4729 Jun 14 12:39	5° 05 03'32		minimum elong	4737 Oct 17 05:00	25° 05 11'36	0°59'54
conjunction	4729 Sep 29 00:24	7° 05 34'51	0°37'50	max. Earth dist.	4737 Oct 16 12:26	25° 05 10'04	31.18004 AU
minimum elong	4729 Sep 29 00:24	7° 05 34'51	0°37'51	retrograde	4738 Jan 28 12:03	27° 05 39'35	
max. Earth dist.	4729 Sep 28 13:15	7° 05 33'49	31.11061 AU	opposition	4738 Apr 15 23:22	26° 05 16'56	1°05'16
retrograde	4730 Jan 11 02:31	10° 05 03'55		min. Earth dist.	4738 Apr 16 14:53	26° 05 15'51	29.18467 AU
opposition	4730 Mar 29 13:02	8° 05 40'57	0°42'01	direct	4738 Jul 04 23:10	24° 05 51'51	
min. Earth dist.	4730 Mar 29 22:37	8° 05 40'17	29.11668 AU	conjunction	4738 Oct 19 16:52	27° 05 23'02	1°02'17
direct	4730 Jun 17 02:03	7° 05 16'00		minimum elong	4738 Oct 19 16:52	27° 05 23'02	1°02'17
conjunction	4730 Oct 01 13:10	9° 05 47'20	0°40'51	max. Earth dist.	4738 Oct 18 23:53	27° 05 21'27	31.18861 AU
minimum elong	4730 Oct 01 13:10	9° 05 47'20	0°40'50	retrograde	4739 Jan 30 23:41	29° 05 50'55	
max. Earth dist.	4730 Oct 01 01:06	9° 05 46'14	31.12219 AU	opposition	4739 Apr 18 09:36	28° 05 28'19	1°07'46
retrograde	4731 Jan 13 14:10	12° 05 16'18		min. Earth dist.	4739 Apr 19 00:17	28° 05 27'17	29.19377 AU
opposition	4731 Mar 31 23:26	10° 05 53'24	0°45'12	direct	4739 Jul 07 12:39	27° 05 03'14	
min. Earth dist.	4731 Apr 01 10:37	10° 05 52'37	29.12796 AU	max. Earth dist.	4739 Oct 21 11:36	29° 05 32'50	31.19823 AU
direct	4731 Jun 19 13:48	9° 05 28'27		conjunction	4739 Oct 22 04:53	29° 05 34'26	1°04'35
conjunction	4731 Oct 04 02:04	11° 05 59'48	0°43'47	minimum elong	4739 Oct 22 04:53	29° 05 34'26	1°04'36
minimum elong	4731 Oct 04 02:04	11° 05 59'48	0°43'48	retrograde	4739 Nov 02 17:42	0° 05	
max. Earth dist.	4731 Oct 03 13:30	11° 05 58'38	31.13293 AU	opposition	4740 Feb 02 11:09	2° 05 02'13	
retrograde	4732 Jan 16 00:38	14° 05 28'37		min. Earth dist.	4740 Apr 19 19:50	0° 05 39'41	1°10'11
					4740 Apr 20 11:33	0° 05 38'36	29.20402 AU

	4740 May 14 12:55	30° $\overset{\circ}{\text{R}}\overset{\circ}{\text{L}}$	minimum elong	4747 Nov 09 03:03	17° $\overset{\circ}{\text{M}}\overset{\circ}{\text{O}}\overset{\circ}{\text{6}}\overset{\circ}{\text{4}}\overset{\circ}{\text{5}}$	1°19'23
direct	4740 Jul 09 00:13	29° $\overset{\circ}{\text{L}}\overset{\circ}{\text{14}}\overset{\circ}{\text{40}}$	retrograde	4748 Feb 19 19:17	19° $\overset{\circ}{\text{M}}\overset{\circ}{\text{33}}\overset{\circ}{\text{52}}$	
	4740 Sep 01 00:02	0° $\overset{\circ}{\text{M}}$	opposition	4748 May 07 08:00	18° $\overset{\circ}{\text{M}}\overset{\circ}{\text{11}}\overset{\circ}{\text{44}}$	1°25'30
			min. Earth dist.	4748 May 08 02:52	18° $\overset{\circ}{\text{M}}\overset{\circ}{\text{10}}\overset{\circ}{\text{26}}$	29.26939 AU
conjunction	4740 Oct 23 16:54	1° $\overset{\circ}{\text{M}}\overset{\circ}{\text{45}}\overset{\circ}{\text{53}}$	1°06'48	direct	4748 Jul 26 22:10	16° $\overset{\circ}{\text{M}}\overset{\circ}{\text{46}}\overset{\circ}{\text{49}}$
minimum elong	4740 Oct 23 16:54	1° $\overset{\circ}{\text{M}}\overset{\circ}{\text{45}}\overset{\circ}{\text{52}}$	1°06'48			
max. Earth dist.	4740 Oct 22 23:46	1° $\overset{\circ}{\text{M}}\overset{\circ}{\text{44}}\overset{\circ}{\text{17}}$	31.20890 AU	conjunction	4748 Nov 10 14:28	19° $\overset{\circ}{\text{M}}\overset{\circ}{\text{17}}\overset{\circ}{\text{50}}$
retrograde	4741 Feb 03 21:19	4° $\overset{\circ}{\text{M}}\overset{\circ}{\text{13}}\overset{\circ}{\text{35}}$		minimum elong	4748 Nov 10 14:27	19° $\overset{\circ}{\text{M}}\overset{\circ}{\text{17}}\overset{\circ}{\text{50}}$
opposition	4741 Apr 22 06:10	2° $\overset{\circ}{\text{M}}\overset{\circ}{\text{51}}\overset{\circ}{\text{09}}$	1°12'29	max. Earth dist.	4748 Nov 09 17:02	19° $\overset{\circ}{\text{M}}\overset{\circ}{\text{15}}\overset{\circ}{\text{51}}$
min. Earth dist.	4741 Apr 22 21:39	2° $\overset{\circ}{\text{M}}\overset{\circ}{\text{50}}\overset{\circ}{\text{04}}$	29.21487 AU	retrograde	4749 Feb 21 05:58	21° $\overset{\circ}{\text{M}}\overset{\circ}{\text{44}}\overset{\circ}{\text{51}}$
direct	4741 Jul 11 13:13	1° $\overset{\circ}{\text{M}}\overset{\circ}{\text{26}}\overset{\circ}{\text{10}}$		opposition	4749 May 09 18:44	20° $\overset{\circ}{\text{M}}\overset{\circ}{\text{22}}\overset{\circ}{\text{42}}$
max. Earth dist.	4741 Oct 25 10:26	3° $\overset{\circ}{\text{M}}\overset{\circ}{\text{55}}\overset{\circ}{\text{43}}$	31.21982 AU	min. Earth dist.	4749 May 10 14:34	20° $\overset{\circ}{\text{M}}\overset{\circ}{\text{21}}\overset{\circ}{\text{20}}$
				direct	4749 Jul 29 09:42	18° $\overset{\circ}{\text{M}}\overset{\circ}{\text{57}}\overset{\circ}{\text{45}}$
conjunction	4741 Oct 26 04:41	3° $\overset{\circ}{\text{M}}\overset{\circ}{\text{57}}\overset{\circ}{\text{24}}$	1°08'55	max. Earth dist.	4749 Nov 12 04:36	21° $\overset{\circ}{\text{M}}\overset{\circ}{\text{26}}\overset{\circ}{\text{45}}$
minimum elong	4741 Oct 26 04:41	3° $\overset{\circ}{\text{M}}\overset{\circ}{\text{57}}\overset{\circ}{\text{24}}$	1°08'56			31.27446 AU
retrograde	4742 Feb 06 08:28	6° $\overset{\circ}{\text{M}}\overset{\circ}{\text{25}}\overset{\circ}{\text{03}}$		conjunction	4749 Nov 13 01:34	21° $\overset{\circ}{\text{M}}\overset{\circ}{\text{28}}\overset{\circ}{\text{42}}$
opposition	4742 Apr 24 16:37	5° $\overset{\circ}{\text{M}}\overset{\circ}{\text{02}}\overset{\circ}{\text{42}}$	1°14'41	minimum elong	4749 Nov 13 01:34	21° $\overset{\circ}{\text{M}}\overset{\circ}{\text{28}}\overset{\circ}{\text{42}}$
min. Earth dist.	4742 Apr 25 08:46	5° $\overset{\circ}{\text{M}}\overset{\circ}{\text{01}}\overset{\circ}{\text{35}}$	29.22586 AU	retrograde	4750 Feb 23 15:32	23° $\overset{\circ}{\text{M}}\overset{\circ}{\text{55}}\overset{\circ}{\text{37}}$
direct	4742 Jul 13 23:57	3° $\overset{\circ}{\text{M}}\overset{\circ}{\text{37}}\overset{\circ}{\text{47}}$		opposition	4750 May 12 05:26	22° $\overset{\circ}{\text{M}}\overset{\circ}{\text{33}}\overset{\circ}{\text{28}}$
				min. Earth dist.	4750 May 13 00:44	22° $\overset{\circ}{\text{M}}\overset{\circ}{\text{32}}\overset{\circ}{\text{08}}$
conjunction	4742 Oct 28 16:38	6° $\overset{\circ}{\text{M}}\overset{\circ}{\text{09}}\overset{\circ}{\text{02}}$	1°10'55	direct	4750 Jul 31 23:04	21° $\overset{\circ}{\text{M}}\overset{\circ}{\text{08}}\overset{\circ}{\text{30}}$
minimum elong	4742 Oct 28 16:37	6° $\overset{\circ}{\text{M}}\overset{\circ}{\text{09}}\overset{\circ}{\text{02}}$	1°10'56			
max. Earth dist.	4742 Oct 27 22:57	6° $\overset{\circ}{\text{M}}\overset{\circ}{\text{07}}\overset{\circ}{\text{24}}$	31.23053 AU	conjunction	4750 Nov 15 12:34	23° $\overset{\circ}{\text{M}}\overset{\circ}{\text{39}}\overset{\circ}{\text{23}}$
retrograde	4743 Feb 08 18:13	8° $\overset{\circ}{\text{M}}\overset{\circ}{\text{36}}\overset{\circ}{\text{36}}$		minimum elong	4750 Nov 15 12:34	23° $\overset{\circ}{\text{M}}\overset{\circ}{\text{39}}\overset{\circ}{\text{23}}$
opposition	4743 Apr 27 03:04	7° $\overset{\circ}{\text{M}}\overset{\circ}{\text{14}}\overset{\circ}{\text{20}}$	1°16'47	max. Earth dist.	4750 Nov 14 14:51	23° $\overset{\circ}{\text{M}}\overset{\circ}{\text{37}}\overset{\circ}{\text{22}}$
min. Earth dist.	4743 Apr 27 19:56	7° $\overset{\circ}{\text{M}}\overset{\circ}{\text{13}}\overset{\circ}{\text{10}}$	29.23618 AU	retrograde	4751 Feb 26 02:33	26° $\overset{\circ}{\text{M}}\overset{\circ}{\text{06}}\overset{\circ}{\text{14}}$
direct	4743 Jul 16 12:17	5° $\overset{\circ}{\text{M}}\overset{\circ}{\text{49}}\overset{\circ}{\text{28}}$		opposition	4751 May 14 16:02	24° $\overset{\circ}{\text{M}}\overset{\circ}{\text{44}}\overset{\circ}{\text{05}}$
max. Earth dist.	4743 Oct 30 09:01	8° $\overset{\circ}{\text{M}}\overset{\circ}{\text{18}}\overset{\circ}{\text{54}}$	31.24034 AU	min. Earth dist.	4751 May 15 11:27	24° $\overset{\circ}{\text{M}}\overset{\circ}{\text{42}}\overset{\circ}{\text{44}}$
				direct	4751 Aug 03 10:23	23° $\overset{\circ}{\text{M}}\overset{\circ}{\text{19}}\overset{\circ}{\text{07}}$
conjunction	4743 Oct 31 04:23	8° $\overset{\circ}{\text{M}}\overset{\circ}{\text{20}}\overset{\circ}{\text{42}}$	1°12'50			
minimum elong	4743 Oct 31 04:23	8° $\overset{\circ}{\text{M}}\overset{\circ}{\text{20}}\overset{\circ}{\text{42}}$	1°12'51	conjunction	4751 Nov 17 23:39	25° $\overset{\circ}{\text{M}}\overset{\circ}{\text{49}}\overset{\circ}{\text{58}}$
retrograde	4744 Feb 11 05:05	10° $\overset{\circ}{\text{M}}\overset{\circ}{\text{48}}\overset{\circ}{\text{12}}$		minimum elong	4751 Nov 17 23:39	25° $\overset{\circ}{\text{M}}\overset{\circ}{\text{49}}\overset{\circ}{\text{58}}$
opposition	4744 Apr 28 13:35	9° $\overset{\circ}{\text{M}}\overset{\circ}{\text{26}}\overset{\circ}{\text{00}}$	1°18'46	max. Earth dist.	4751 Nov 17 03:04	25° $\overset{\circ}{\text{M}}\overset{\circ}{\text{48}}\overset{\circ}{\text{03}}$
min. Earth dist.	4744 Apr 29 06:33	9° $\overset{\circ}{\text{M}}\overset{\circ}{\text{24}}\overset{\circ}{\text{50}}$	29.24547 AU	retrograde	4752 Feb 28 11:55	28° $\overset{\circ}{\text{M}}\overset{\circ}{\text{16}}\overset{\circ}{\text{45}}$
direct	4744 Jul 17 23:06	8° $\overset{\circ}{\text{M}}\overset{\circ}{\text{01}}\overset{\circ}{\text{09}}$		opposition	4752 May 16 02:50	26° $\overset{\circ}{\text{M}}\overset{\circ}{\text{54}}\overset{\circ}{\text{38}}$
				min. Earth dist.	4752 May 16 22:21	26° $\overset{\circ}{\text{M}}\overset{\circ}{\text{53}}\overset{\circ}{\text{17}}$
conjunction	4744 Nov 01 16:19	10° $\overset{\circ}{\text{M}}\overset{\circ}{\text{32}}\overset{\circ}{\text{22}}$	1°14'38	direct	4752 Aug 04 23:26	25° $\overset{\circ}{\text{M}}\overset{\circ}{\text{29}}\overset{\circ}{\text{42}}$
minimum elong	4744 Nov 01 16:19	10° $\overset{\circ}{\text{M}}\overset{\circ}{\text{32}}\overset{\circ}{\text{22}}$	1°14'38			
max. Earth dist.	4744 Oct 31 21:20	10° $\overset{\circ}{\text{M}}\overset{\circ}{\text{30}}\overset{\circ}{\text{37}}$	31.24883 AU	conjunction	4752 Nov 19 10:30	28° $\overset{\circ}{\text{M}}\overset{\circ}{\text{00}}\overset{\circ}{\text{31}}$
retrograde	4745 Feb 12 12:50	12° $\overset{\circ}{\text{M}}\overset{\circ}{\text{59}}\overset{\circ}{\text{47}}$		minimum elong	4752 Nov 19 10:30	28° $\overset{\circ}{\text{M}}\overset{\circ}{\text{00}}\overset{\circ}{\text{31}}$
opposition	4745 May 01 00:15	11° $\overset{\circ}{\text{M}}\overset{\circ}{\text{37}}\overset{\circ}{\text{38}}$	1°20'38	max. Earth dist.	4752 Nov 18 12:59	27° $\overset{\circ}{\text{M}}\overset{\circ}{\text{58}}\overset{\circ}{\text{31}}$
min. Earth dist.	4745 May 01 18:31	11° $\overset{\circ}{\text{M}}\overset{\circ}{\text{36}}\overset{\circ}{\text{22}}$	29.25328 AU		4753 Jan 20 14:28	0° $\overset{\circ}{\text{X}}$
direct	4745 Jul 20 10:48	10° $\overset{\circ}{\text{M}}\overset{\circ}{\text{12}}\overset{\circ}{\text{47}}$		retrograde	4753 Mar 01 22:40	0° $\overset{\circ}{\text{X}}\overset{\circ}{\text{27}}\overset{\circ}{\text{17}}$
max. Earth dist.	4745 Nov 03 07:29	12° $\overset{\circ}{\text{M}}\overset{\circ}{\text{42}}\overset{\circ}{\text{04}}$	31.25600 AU		4753 Apr 12 06:49	30° $\overset{\circ}{\text{R}}\overset{\circ}{\text{M}}$
				opposition	4753 May 18 13:32	29° $\overset{\circ}{\text{M}}\overset{\circ}{\text{05}}\overset{\circ}{\text{13}}$
conjunction	4745 Nov 04 04:00	12° $\overset{\circ}{\text{M}}\overset{\circ}{\text{43}}\overset{\circ}{\text{59}}$	1°16'19	min. Earth dist.	4753 May 19 08:25	29° $\overset{\circ}{\text{M}}\overset{\circ}{\text{03}}\overset{\circ}{\text{55}}$
minimum elong	4745 Nov 04 03:59	12° $\overset{\circ}{\text{M}}\overset{\circ}{\text{43}}\overset{\circ}{\text{59}}$	1°16'20	direct	4753 Aug 07 10:18	27° $\overset{\circ}{\text{M}}\overset{\circ}{\text{40}}\overset{\circ}{\text{20}}$
	4746 Jan 20 07:31	15° $\overset{\circ}{\text{M}}$			4753 Nov 16 21:36	0° $\overset{\circ}{\text{X}}$
retrograde	4746 Feb 14 23:41	15° $\overset{\circ}{\text{M}}\overset{\circ}{\text{11}}\overset{\circ}{\text{18}}$				
	4746 Mar 13 01:41	15° $\overset{\circ}{\text{R}}\overset{\circ}{\text{M}}$		conjunction	4753 Nov 21 21:28	0° $\overset{\circ}{\text{X}}\overset{\circ}{\text{11}}\overset{\circ}{\text{09}}$
opposition	4746 May 03 10:51	13° $\overset{\circ}{\text{M}}\overset{\circ}{\text{49}}\overset{\circ}{\text{10}}$	1°22'22	minimum elong	4753 Nov 21 21:28	0° $\overset{\circ}{\text{X}}\overset{\circ}{\text{11}}\overset{\circ}{\text{09}}$
min. Earth dist.	4746 May 04 04:42	13° $\overset{\circ}{\text{M}}\overset{\circ}{\text{47}}\overset{\circ}{\text{56}}$	29.25980 AU	max. Earth dist.	4753 Nov 21 01:04	0° $\overset{\circ}{\text{X}}\overset{\circ}{\text{09}}\overset{\circ}{\text{15}}$
direct	4746 Jul 22 21:53	12° $\overset{\circ}{\text{M}}\overset{\circ}{\text{24}}\overset{\circ}{\text{18}}$		retrograde	4754 Mar 04 06:50	2° $\overset{\circ}{\text{X}}\overset{\circ}{\text{37}}\overset{\circ}{\text{53}}$
				opposition	4754 May 21 00:29	1° $\overset{\circ}{\text{X}}\overset{\circ}{\text{15}}\overset{\circ}{\text{54}}$
conjunction	4746 Nov 06 15:33	14° $\overset{\circ}{\text{M}}\overset{\circ}{\text{55}}\overset{\circ}{\text{27}}$	1°17'54	min. Earth dist.	4754 May 21 20:11	1° $\overset{\circ}{\text{X}}\overset{\circ}{\text{14}}\overset{\circ}{\text{32}}$
minimum elong	4746 Nov 06 15:33	14° $\overset{\circ}{\text{M}}\overset{\circ}{\text{55}}\overset{\circ}{\text{27}}$	1°17'54		4754 Jul 17 01:01	30° $\overset{\circ}{\text{R}}\overset{\circ}{\text{M}}$
max. Earth dist.	4746 Nov 05 19:11	14° $\overset{\circ}{\text{M}}\overset{\circ}{\text{53}}\overset{\circ}{\text{33}}$	31.26180 AU	direct	4754 Aug 09 21:32	29° $\overset{\circ}{\text{M}}\overset{\circ}{\text{51}}\overset{\circ}{\text{05}}$
	4746 Nov 08 16:33	15° $\overset{\circ}{\text{M}}$			4754 Sep 02 10:06	0° $\overset{\circ}{\text{X}}$
retrograde	4747 Feb 17 08:39	17° $\overset{\circ}{\text{M}}\overset{\circ}{\text{22}}\overset{\circ}{\text{41}}$		max. Earth dist.	4754 Nov 23 10:50	2° $\overset{\circ}{\text{X}}\overset{\circ}{\text{19}}\overset{\circ}{\text{54}}$
opposition	4747 May 05 21:35	16° $\overset{\circ}{\text{M}}\overset{\circ}{\text{00}}\overset{\circ}{\text{33}}$	1°24'00			31.30279 AU
min. Earth dist.	4747 May 06 16:57	15° $\overset{\circ}{\text{M}}\overset{\circ}{\text{59}}\overset{\circ}{\text{13}}$	29.26507 AU	conjunction	4754 Nov 24 08:07	2° $\overset{\circ}{\text{X}}\overset{\circ}{\text{21}}\overset{\circ}{\text{53}}$
	4747 Jun 15 13:23	15° $\overset{\circ}{\text{R}}\overset{\circ}{\text{M}}$		minimum elong	4754 Nov 24 08:07	2° $\overset{\circ}{\text{X}}\overset{\circ}{\text{21}}\overset{\circ}{\text{53}}$
direct	4747 Jul 25 08:20	14° $\overset{\circ}{\text{M}}\overset{\circ}{\text{35}}\overset{\circ}{\text{40}}$		retrograde	4755 Mar 06 17:46	4° $\overset{\circ}{\text{X}}\overset{\circ}{\text{48}}\overset{\circ}{\text{37}}$
	4747 Sep 02 14:21	15° $\overset{\circ}{\text{M}}$		opposition	4755 May 23 11:19	3° $\overset{\circ}{\text{X}}\overset{\circ}{\text{26}}\overset{\circ}{\text{41}}$
max. Earth dist.	4747 Nov 08 06:02	17° $\overset{\circ}{\text{M}}\overset{\circ}{\text{04}}\overset{\circ}{\text{47}}$	31.26659 AU	min. Earth dist.	4755 May 24 06:14	3° $\overset{\circ}{\text{X}}\overset{\circ}{\text{25}}\overset{\circ}{\text{23}}$
				direct	4755 Aug 12 08:06	2° $\overset{\circ}{\text{X}}\overset{\circ}{\text{01}}\overset{\circ}{\text{56}}$
conjunction	4747 Nov 09 03:03	17° $\overset{\circ}{\text{M}}\overset{\circ}{\text{06}}\overset{\circ}{\text{45}}$	1°19'22			

conjunction	4755 Nov 26 19:03	4°♏32'44	1°26'50	retrograde	4764 Mar 25 12:54	24°♏25'12	
minimum elong	4755 Nov 26 19:03	4°♏32'44	1°26'50	opposition	4764 Jun 11 15:42	23°♏03'14	1°31'58
max. Earth dist.	4755 Nov 25 22:08	4°♏30'47	31.30846 AU	min. Earth dist.	4764 Jun 12 10:25	23°♏01'57	29.31635 AU
retrograde	4756 Mar 08 03:02	6°♏59'29		direct	4764 Aug 31 19:35	21°♏38'32	
opposition	4756 May 24 22:19	5°♏37'35	1°32'58				
min. Earth dist.	4756 May 25 18:33	5°♏36'12	29.31185 AU	conjunction	4764 Dec 15 16:54	24°♏08'52	1°25'47
direct	4756 Aug 13 17:57	4°♏12'53		minimum elong	4764 Dec 15 16:54	24°♏08'52	1°25'47
max. Earth dist.	4756 Nov 27 08:35	6°♏41'41	31.31311 AU	max. Earth dist.	4764 Dec 14 20:54	24°♏06'59	31.31587 AU
				retrograde	4765 Mar 27 21:40	26°♏35'28	
conjunction	4756 Nov 28 05:52	6°♏43'40	1°27'13	opposition	4765 Jun 14 03:10	25°♏13'29	1°31'15
minimum elong	4756 Nov 28 05:52	6°♏43'40	1°27'13	min. Earth dist.	4765 Jun 14 22:25	25°♏12'10	29.31742 AU
retrograde	4757 Mar 10 13:56	9°♏10'24		direct	4765 Sep 03 05:43	23°♏48'51	
opposition	4757 May 27 09:24	7°♏48'33	1°33'18	max. Earth dist.	4765 Dec 17 07:16	26°♏17'17	31.31740 AU
min. Earth dist.	4757 May 28 04:55	7°♏47'13	29.31577 AU				
direct	4757 Aug 16 07:05	6°♏23'53		conjunction	4765 Dec 18 02:43	26°♏19'07	1°25'03
				minimum elong	4765 Dec 18 02:43	26°♏19'07	1°25'03
conjunction	4757 Nov 30 16:31	8°♏54'39	1°27'28	retrograde	4766 Mar 30 07:38	28°♏45'45	
minimum elong	4757 Nov 30 16:31	8°♏54'39	1°27'28	opposition	4766 Jun 16 14:29	27°♏23'47	1°30'24
max. Earth dist.	4757 Nov 29 18:52	8°♏52'38	31.31627 AU	min. Earth dist.	4766 Jun 17 08:23	27°♏22'34	29.31909 AU
retrograde	4758 Mar 13 01:09	11°♏21'23		direct	4766 Sep 05 17:41	25°♏59'12	
opposition	4758 May 29 20:38	9°♏59'32	1°33'30				
min. Earth dist.	4758 May 30 17:03	9°♏58'09	29.31833 AU	conjunction	4766 Dec 20 12:40	28°♏29'26	1°24'11
direct	4758 Aug 18 17:49	8°♏34'53		minimum elong	4766 Dec 20 12:40	28°♏29'26	1°24'12
max. Earth dist.	4758 Dec 02 05:56	11°♏03'37	31.31810 AU	max. Earth dist.	4766 Dec 19 17:19	28°♏27'37	31.31920 AU
					4767 Feb 01 20:55	0°♏	
conjunction	4758 Dec 03 03:15	11°♏05'37	1°27'36	retrograde	4767 Apr 01 18:37	0°♏56'07	
minimum elong	4758 Dec 03 03:15	11°♏05'37	1°27'36		4767 Jun 03 00:09	30°♏	
retrograde	4759 Mar 15 10:52	13°♏32'20		opposition	4767 Jun 19 01:52	29°♏34'10	1°29'26
opposition	4759 Jun 01 07:40	12°♏10'29	1°33'35	min. Earth dist.	4767 Jun 19 20:11	29°♏32'56	29.32095 AU
min. Earth dist.	4759 Jun 02 03:50	12°♏09'06	29.31936 AU	direct	4767 Sep 08 02:54	28°♏09'38	
direct	4759 Aug 21 06:43	10°♏45'50			4767 Dec 04 23:49	0°♏	
conjunction	4759 Dec 05 13:49	13°♏16'30	1°27'36	conjunction	4767 Dec 22 22:42	0°♏39'50	1°23'13
minimum elong	4759 Dec 05 13:49	13°♏16'30	1°27'37	minimum elong	4767 Dec 22 22:42	0°♏39'50	1°23'13
max. Earth dist.	4759 Dec 04 15:28	13°♏14'25	31.31850 AU	max. Earth dist.	4767 Dec 22 04:16	0°♏38'07	31.32092 AU
retrograde	4760 Mar 16 22:38	15°♏43'12		retrograde	4768 Apr 03 04:44	3°♏06'35	
opposition	4760 Jun 02 18:52	14°♏21'20	1°33'31	opposition	4768 Jun 20 13:27	1°♏44'39	1°28'19
min. Earth dist.	4760 Jun 03 15:17	14°♏19'56	29.31923 AU	min. Earth dist.	4768 Jun 21 07:08	1°♏43'27	29.32225 AU
direct	4760 Aug 22 18:44	12°♏56'40		direct	4768 Sep 09 15:24	0°♏20'10	
max. Earth dist.	4760 Dec 06 03:05	15°♏25'18	31.31786 AU				
				conjunction	4768 Dec 24 08:31	2°♏50'20	1°22'07
conjunction	4760 Dec 07 00:20	15°♏27'17	1°27'29	minimum elong	4768 Dec 24 08:31	2°♏50'20	1°22'07
minimum elong	4760 Dec 07 00:20	15°♏27'17	1°27'30	max. Earth dist.	4768 Dec 23 13:26	2°♏48'33	31.32184 AU
retrograde	4761 Mar 19 08:14	17°♏53'56		retrograde	4769 Apr 05 17:04	5°♏17'08	
opposition	4761 Jun 05 06:07	16°♏32'02	1°33'20	opposition	4769 Jun 23 01:09	3°♏55'12	1°27'05
min. Earth dist.	4761 Jun 06 02:46	16°♏30'37	29.31816 AU	min. Earth dist.	4769 Jun 23 18:43	3°♏54'01	29.32278 AU
direct	4761 Aug 25 08:44	15°♏07'22		direct	4769 Sep 12 02:40	2°♏30'46	
conjunction	4761 Dec 09 10:33	17°♏37'53	1°27'14	conjunction	4769 Dec 26 18:33	5°♏00'54	1°20'54
minimum elong	4761 Dec 09 10:33	17°♏37'53	1°27'15	minimum elong	4769 Dec 26 18:34	5°♏00'54	1°20'54
max. Earth dist.	4761 Dec 08 12:31	17°♏35'50	31.31669 AU	max. Earth dist.	4769 Dec 26 00:46	4°♏59'14	31.32179 AU
retrograde	4762 Mar 21 18:42	20°♏04'30		retrograde	4770 Apr 08 03:15	7°♏27'44	
opposition	4762 Jun 07 17:17	18°♏42'34	1°33'01	opposition	4770 Jun 25 12:55	6°♏05'49	1°25'43
min. Earth dist.	4762 Jun 08 13:03	18°♏41'13	29.31705 AU	min. Earth dist.	4770 Jun 26 06:40	6°♏04'36	29.32204 AU
direct	4762 Aug 27 20:08	17°♏17'52		direct	4770 Sep 14 15:51	4°♏41'25	
				max. Earth dist.	4770 Dec 28 09:42	7°♏09'45	31.32046 AU
conjunction	4762 Dec 11 20:44	19°♏48'19	1°26'53	conjunction	4770 Dec 29 04:22	7°♏11'29	1°19'34
minimum elong	4762 Dec 11 20:44	19°♏48'19	1°26'53	minimum elong	4770 Dec 29 04:22	7°♏11'29	1°19'34
max. Earth dist.	4762 Dec 11 00:05	19°♏46'24	31.31563 AU	retrograde	4771 Apr 10 14:42	9°♏38'23	
retrograde	4763 Mar 24 02:21	22°♏14'55		opposition	4771 Jun 28 00:39	8°♏16'26	1°24'14
opposition	4763 Jun 10 04:35	20°♏52'57	1°32'33	min. Earth dist.	4771 Jun 28 17:34	8°♏15'17	29.32000 AU
min. Earth dist.	4763 Jun 11 00:46	20°♏51'34	29.31625 AU	direct	4771 Sep 17 03:12	6°♏52'04	
direct	4763 Aug 30 08:24	19°♏28'15					
max. Earth dist.	4763 Dec 13 09:46	21°♏56'40	31.31530 AU	conjunction	4771 Dec 31 14:21	9°♏22'05	1°18'07
				minimum elong	4771 Dec 31 14:21	9°♏22'05	1°18'08
conjunction	4763 Dec 14 06:46	21°♏58'37	1°26'23	max. Earth dist.	4771 Dec 30 20:44	9°♏20'26	31.31766 AU
minimum elong	4763 Dec 14 06:46	21°♏58'37	1°26'23				

retrograde	4772 Apr 11 23:28	11° $\overline{3}$ 49'01		direct	4780 Oct 06 09:20	26° $\overline{3}$ 27'08	
opposition	4772 Jun 29 12:32	10° $\overline{3}$ 27'03	1°22'39				
min. Earth dist.	4772 Jun 30 06:07	10° $\overline{3}$ 25'51	29.31650 AU	conjunction	4781 Jan 19 04:19	28° $\overline{3}$ 56'42	1°00'27
direct	4772 Sep 18 15:55	9° $\overline{3}$ 02'42		minimum elong	4781 Jan 19 04:19	28° $\overline{3}$ 56'42	1°00'27
max. Earth dist.	4773 Jan 01 06:07	11° $\overline{3}$ 30'57	31.31371 AU	max. Earth dist.	4781 Jan 18 16:29	28° $\overline{3}$ 55'35	31.28582 AU
					4781 Feb 17 02:12	0° \approx	
conjunction	4773 Jan 02 00:08	11° $\overline{3}$ 32'39	1°16'34	retrograde	4781 May 02 00:02	1° \approx 24'24	
minimum elong	4773 Jan 02 00:08	11° $\overline{3}$ 32'39	1°16'35	opposition	4781 Jul 20 00:41	0° \approx 02'12	1°03'17
retrograde	4773 Apr 14 10:33	13° $\overline{3}$ 59'37		min. Earth dist.	4781 Jul 20 12:42	0° \approx 01'23	29.28474 AU
opposition	4773 Jul 02 00:22	12° $\overline{3}$ 37'36	1°20'56		4781 Jul 21 09:11	30° \overline{R} $\overline{3}$	
min. Earth dist.	4773 Jul 02 16:36	12° $\overline{3}$ 36'30	29.31199 AU	direct	4781 Oct 08 22:21	28° $\overline{3}$ 38'12	
direct	4773 Sep 21 03:52	11° $\overline{3}$ 13'15			4781 Dec 21 11:11	0° \approx	
conjunction	4774 Jan 04 09:46	13° $\overline{3}$ 43'07	1°14'55	conjunction	4782 Jan 21 13:44	1° \approx 07'44	0°58'00
minimum elong	4774 Jan 04 09:46	13° $\overline{3}$ 43'07	1°14'55	minimum elong	4782 Jan 21 13:45	1° \approx 07'44	0°58'00
max. Earth dist.	4774 Jan 03 16:35	13° $\overline{3}$ 41'30	31.30883 AU	max. Earth dist.	4782 Jan 21 01:51	1° \approx 06'37	31.28265 AU
retrograde	4774 Apr 16 19:29	16° $\overline{3}$ 10'09		retrograde	4782 May 04 12:26	3° \approx 35'32	
opposition	4774 Jul 04 12:20	14° $\overline{3}$ 48'04	1°19'06	opposition	4782 Jul 22 13:00	2° \approx 13'20	1°00'37
min. Earth dist.	4774 Jul 05 05:11	14° $\overline{3}$ 46'55	29.30694 AU	min. Earth dist.	4782 Jul 22 23:34	2° \approx 12'37	29.28094 AU
direct	4774 Sep 23 14:40	13° $\overline{3}$ 23'43		direct	4782 Oct 11 10:45	0° \approx 49'23	
conjunction	4775 Jan 06 19:23	15° $\overline{3}$ 53'30	1°13'09	conjunction	4783 Jan 23 23:24	3° \approx 18'52	0°55'28
minimum elong	4775 Jan 06 19:23	15° $\overline{3}$ 53'30	1°13'10	minimum elong	4783 Jan 23 23:24	3° \approx 18'52	0°55'28
max. Earth dist.	4775 Jan 06 02:55	15° $\overline{3}$ 51'57	31.30381 AU	max. Earth dist.	4783 Jan 23 12:03	3° \approx 17'48	31.27813 AU
retrograde	4775 Apr 19 05:07	18° $\overline{3}$ 20'34		retrograde	4783 May 06 21:45	5° \approx 46'47	
opposition	4775 Jul 07 00:01	16° $\overline{3}$ 58'27	1°17'10	opposition	4783 Jul 25 01:24	4° \approx 24'32	0°57'52
min. Earth dist.	4775 Jul 07 15:21	16° $\overline{3}$ 57'24	29.30195 AU	min. Earth dist.	4783 Jul 25 12:43	4° \approx 23'46	29.27575 AU
direct	4775 Sep 26 02:39	15° $\overline{3}$ 34'06		direct	4783 Oct 13 21:44	3° \approx 00'38	
conjunction	4776 Jan 09 04:56	18° $\overline{3}$ 03'50	1°11'17	conjunction	4784 Jan 26 09:04	5° \approx 30'03	0°52'51
minimum elong	4776 Jan 09 04:56	18° $\overline{3}$ 03'50	1°11'18	minimum elong	4784 Jan 26 09:05	5° \approx 30'03	0°52'52
max. Earth dist.	4776 Jan 08 12:46	18° $\overline{3}$ 02'18	31.29909 AU	max. Earth dist.	4784 Jan 25 22:20	5° \approx 29'02	31.27228 AU
retrograde	4776 Apr 20 16:06	20° $\overline{3}$ 30'58		retrograde	4784 May 08 07:39	7° \approx 58'04	
opposition	4776 Jul 08 12:03	19° $\overline{3}$ 08'48	1°15'07	opposition	4784 Jul 26 13:56	6° \approx 35'46	0°55'03
min. Earth dist.	4776 Jul 09 03:14	19° $\overline{3}$ 07'46	29.29771 AU	min. Earth dist.	4784 Jul 26 23:54	6° \approx 35'05	29.26901 AU
direct	4776 Sep 27 11:34	17° $\overline{3}$ 44'28		direct	4784 Oct 15 10:08	5° \approx 11'52	
conjunction	4777 Jan 10 14:24	20° $\overline{3}$ 14'09	1°09'19	conjunction	4785 Jan 27 18:34	7° \approx 41'13	0°50'10
minimum elong	4777 Jan 10 14:24	20° $\overline{3}$ 14'09	1°09'20	minimum elong	4785 Jan 27 18:34	7° \approx 41'13	0°50'11
max. Earth dist.	4777 Jan 09 23:49	20° $\overline{3}$ 12'47	31.29535 AU	max. Earth dist.	4785 Jan 27 07:42	7° \approx 40'12	31.26481 AU
retrograde	4777 Apr 23 02:08	22° $\overline{3}$ 41'23		retrograde	4785 May 10 18:47	10° \approx 09'20	
opposition	4777 Jul 11 00:04	21° $\overline{3}$ 19'12	1°12'58	opposition	4785 Jul 29 02:36	8° \approx 46'57	0°52'08
min. Earth dist.	4777 Jul 11 13:59	21° $\overline{3}$ 18'15	29.29432 AU	min. Earth dist.	4785 Jul 29 12:45	8° \approx 46'16	29.26092 AU
direct	4777 Sep 29 23:50	19° $\overline{3}$ 54'55		direct	4785 Oct 17 19:46	7° \approx 23'03	
conjunction	4778 Jan 12 23:49	22° $\overline{3}$ 24'33	1°07'15	conjunction	4786 Jan 30 04:12	9° \approx 52'18	0°47'25
minimum elong	4778 Jan 12 23:49	22° $\overline{3}$ 24'33	1°07'16	minimum elong	4786 Jan 30 04:12	9° \approx 52'18	0°47'26
max. Earth dist.	4778 Jan 12 09:04	22° $\overline{3}$ 23'10	31.29250 AU	max. Earth dist.	4786 Jan 29 18:41	9° \approx 51'25	31.25619 AU
retrograde	4778 Apr 25 15:02	24° $\overline{3}$ 51'54		retrograde	4786 May 13 04:49	12° \approx 20'30	
opposition	4778 Jul 13 12:01	23° $\overline{3}$ 29'42	1°10'42	opposition	4786 Jul 31 15:01	10° \approx 58'02	0°49'09
min. Earth dist.	4778 Jul 14 01:12	23° $\overline{3}$ 28'48	29.29191 AU	min. Earth dist.	4786 Aug 01 00:14	10° \approx 57'25	29.25173 AU
direct	4778 Oct 02 10:17	22° $\overline{3}$ 05'29		direct	4786 Oct 20 08:37	9° \approx 34'07	
conjunction	4779 Jan 15 09:21	24° $\overline{3}$ 35'06	1°05'05	conjunction	4787 Feb 01 13:35	12° \approx 03'16	0°44'35
minimum elong	4779 Jan 15 09:21	24° $\overline{3}$ 35'06	1°05'05	minimum elong	4787 Feb 01 13:35	12° \approx 03'16	0°44'36
max. Earth dist.	4779 Jan 14 20:26	24° $\overline{3}$ 33'53	31.29034 AU	max. Earth dist.	4787 Feb 01 03:44	12° \approx 02'21	31.24679 AU
retrograde	4779 Apr 28 01:48	27° $\overline{3}$ 02'33		retrograde	4787 May 15 17:14	14° \approx 31'34	
opposition	4779 Jul 16 00:09	25° $\overline{3}$ 40'22	1°08'20	opposition	4787 Aug 03 03:34	13° \approx 08'59	0°46'06
min. Earth dist.	4779 Jul 16 13:04	25° $\overline{3}$ 39'29	29.28974 AU	min. Earth dist.	4787 Aug 03 12:04	13° \approx 08'25	29.24225 AU
direct	4779 Oct 04 22:40	24° $\overline{3}$ 16'14		direct	4787 Oct 22 18:53	11° \approx 45'03	
conjunction	4780 Jan 17 18:44	26° $\overline{3}$ 45'49	1°02'49	conjunction	4788 Feb 03 23:01	14° \approx 14'08	0°41'42
minimum elong	4780 Jan 17 18:44	26° $\overline{3}$ 45'49	1°02'49	minimum elong	4788 Feb 03 23:01	14° \approx 14'08	0°41'42
max. Earth dist.	4780 Jan 17 05:30	26° $\overline{3}$ 44'34	31.28828 AU	max. Earth dist.	4788 Feb 03 15:09	14° \approx 13'24	31.23732 AU
retrograde	4780 Apr 29 13:52	29° $\overline{3}$ 13'23			4788 Feb 24 12:32	15° \approx	
opposition	4780 Jul 17 12:15	27° $\overline{3}$ 51'12	1°05'51	retrograde	4788 May 17 03:33	16° \approx 42'31	
min. Earth dist.	4780 Jul 17 23:55	27° $\overline{3}$ 50'25	29.28755 AU	opposition	4788 Aug 04 16:12	15° \approx 19'51	0°42'59

min. Earth dist.	4788 Aug 05 00:08	15° 19 '19	29.23296 AU	retrograde	4796 Jun 04 00:33	4° 13 '57	
	4788 Aug 17 00:03	15° 19 ' 19		opposition	4796 Aug 22 22:19	2° 13 '50'58	0°16'08
direct	4788 Oct 24 07:00	13° 55 '56		min. Earth dist.	4796 Aug 22 23:38	2° 13 '50'53	29.17243 AU
	4788 Dec 27 10:26	15° 55 ' 56		direct	4796 Nov 11 01:02	1° 13 '27'28	
conjunction	4789 Feb 05 08:21	16° 24 '56	0°38'46	conjunction	4797 Feb 22 12:48	3° 13 '56'17	0°13'29
minimum elong	4789 Feb 05 08:21	16° 24 '56	0°38'46	minimum elong	4797 Feb 22 12:48	3° 13 '56'17	0°13'30
max. Earth dist.	4789 Feb 05 00:31	16° 24 '24'12	31.22850 AU	behind sun begin	4797 Feb 22 09:06	3° 13 '55'57	
retrograde	4789 May 19 16:08	18° 53 '26		behind sun end	4797 Feb 22 16:29	3° 13 '56'37	
opposition	4789 Aug 07 04:45	17° 30 '42	0°39'49	max. Earth dist.	4797 Feb 22 11:51	3° 13 '56'12	31.16714 AU
min. Earth dist.	4789 Aug 07 10:57	17° 30 '17	29.22461 AU	retrograde	4797 Jun 06 11:31	6° 03 '26'06	
direct	4789 Oct 26 17:47	16° 06 '48		opposition	4797 Aug 25 11:21	5° 03 '03'03	0°12'36
conjunction	4790 Feb 07 17:44	18° 35 '46	0°35'46	min. Earth dist.	4797 Aug 25 12:31	5° 02 '58	29.16163 AU
minimum elong	4790 Feb 07 17:44	18° 35 '46	0°35'46	direct	4797 Nov 13 12:24	3° 13 '39'33	
max. Earth dist.	4790 Feb 07 11:37	18° 35 '11	31.22055 AU	conjunction	4798 Feb 24 22:27	6° 08 '18	0°10'11
retrograde	4790 May 22 03:01	21° 04 '24		minimum elong	4798 Feb 24 22:27	6° 08 '18	0°10'11
opposition	4790 Aug 09 17:27	19° 41 '37	0°36'34	behind sun begin	4798 Feb 24 17:18	6° 07 '50	
min. Earth dist.	4790 Aug 09 23:32	19° 41 '12	29.21707 AU	behind sun end	4798 Feb 25 03:36	6° 08 '46	
direct	4790 Oct 29 06:27	18° 17 '46		max. Earth dist.	4798 Feb 24 21:11	6° 08 '12	31.15584 AU
conjunction	4791 Feb 10 03:07	20° 46 '42	0°32'42	retrograde	4798 Jun 09 00:48	8° 13 '38'16	
minimum elong	4791 Feb 10 03:07	20° 46 '42	0°32'43	opposition	4798 Aug 28 00:17	7° 15 '07	0°09'04
max. Earth dist.	4791 Feb 09 21:28	20° 46 '10	31.21350 AU	min. Earth dist.	4798 Aug 28 00:12	7° 15 '07	29.14977 AU
retrograde	4791 May 24 15:46	23° 15 '29		direct	4798 Nov 15 23:29	5° 11 '51'36	
opposition	4791 Aug 12 05:54	21° 52 '40	0°33'17	conjunction	4799 Feb 27 08:14	8° 20 '18	0°06'53
min. Earth dist.	4791 Aug 12 10:03	21° 52 '23	29.21023 AU	minimum elong	4799 Feb 27 08:14	8° 20 '18	0°06'53
direct	4791 Oct 31 18:34	20° 28 '52		behind sun begin	4799 Feb 27 02:16	8° 19 '45	
conjunction	4792 Feb 12 12:35	22° 57 '48	0°29'36	behind sun end	4799 Feb 27 14:11	8° 20 '50	
minimum elong	4792 Feb 12 12:35	22° 57 '48	0°29'36	max. Earth dist.	4799 Feb 27 08:14	8° 20 '18	31.14352 AU
max. Earth dist.	4792 Feb 12 07:54	22° 57 '22	31.20686 AU	retrograde	4799 Jun 11 12:35	10° 50 '22	
retrograde	4792 May 26 02:06	25° 26 '46		opposition	4799 Aug 30 13:16	9° 27 '06	0°05'31
opposition	4792 Aug 13 18:47	24° 03 '56	0°29'56	min. Earth dist.	4799 Aug 30 13:19	9° 27 '06	29.13726 AU
min. Earth dist.	4792 Aug 13 23:10	24° 03 '38	29.20373 AU	direct	4799 Nov 18 12:35	8° 03 '34	
direct	4792 Nov 02 05:22	22° 40 '13					
conjunction	4793 Feb 13 22:01	25° 09 '06	0°26'27	conjunction	4800 Feb 29 17:54	10° 32 '12	0°03'35
minimum elong	4793 Feb 13 22:01	25° 09 '06	0°26'27	minimum elong	4800 Feb 29 17:54	10° 32 '12	0°03'34
max. Earth dist.	4793 Feb 13 18:34	25° 08 '47	31.20044 AU	behind sun begin	4800 Feb 29 11:33	10° 31 '38	
retrograde	4793 May 28 12:46	27° 38 '15		behind sun end	4800 Mar 01 00:15	10° 32 '46	
opposition	4793 Aug 16 07:34	26° 15 '24	0°26'32	max. Earth dist.	4800 Feb 29 18:29	10° 32 '14	31.13112 AU
min. Earth dist.	4793 Aug 16 10:18	26° 15 '13	29.19710 AU	retrograde	4800 Jun 13 01:51	13° 02 '24	
direct	4793 Nov 04 17:34	24° 51 '45		opposition	4800 Sep 01 02:13	11° 39 '01	0°01'57
conjunction	4794 Feb 16 07:34	27° 20 '38	0°23'15	min. Earth dist.	4800 Sep 01 00:14	11° 39 '09	29.12502 AU
minimum elong	4794 Feb 16 07:34	27° 20 '38	0°23'15	direct	4800 Nov 20 00:57	10° 15 '28	
max. Earth dist.	4794 Feb 16 04:08	27° 20 '19	31.19358 AU	conjunction	4801 Mar 03 03:30	12° 44 '02	0°00'11
retrograde	4794 May 31 00:44	29° 49 '58		minimum elong	4801 Mar 03 03:29	12° 44 '02	0°00'11
opposition	4794 Aug 18 20:22	28° 27 '05	0°23'06	behind sun begin	4801 Mar 02 21:09	12° 43 '27	
min. Earth dist.	4794 Aug 18 23:11	28° 26 '54	29.19000 AU	behind sun end	4801 Mar 03 09:49	12° 44 '36	
direct	4794 Nov 07 02:48	27° 03 '30		max. Earth dist.	4801 Mar 03 05:04	12° 44 '06	31.11915 AU
conjunction	4795 Feb 18 17:20	29° 32 '22	0°20'01	desc. node	4801 Mar 22 06:14	13° 26 '56	
minimum elong	4795 Feb 18 17:20	29° 32 '22	0°20'02	retrograde	4801 Jun 15 12:24	15° 14 '22	
max. Earth dist.	4795 Feb 18 15:19	29° 32 '11	31.18601 AU	opposition	4801 Sep 03 15:19	13° 50 '52	0°-1'-35
retrograde	4795 Jun 02 11:29	2° 11 '01'52		min. Earth dist.	4801 Sep 03 13:21	13° 51 '00	29.11360 AU
opposition	4795 Aug 21 09:16	0° 38 '58	0°19'38	direct	4801 Nov 22 12:23	12° 27 '19	
min. Earth dist.	4795 Aug 21 11:08	0° 38 '50	29.18180 AU				
	4795 Sep 15 07:30	30° 15 ' 25		conjunction	4802 Mar 05 13:16	14° 55 '50	0°-3'-13
direct	4795 Nov 09 15:21	29° 15 '25		minimum elong	4802 Mar 05 13:16	14° 55 '50	0°03'14
	4796 Jan 01 05:44	0° 15 ' 25		behind sun begin	4802 Mar 05 06:54	14° 55 '15	
conjunction	4796 Feb 21 02:54	1° 44 '16	0°16'46	behind sun end	4802 Mar 05 19:38	14° 56 '25	
minimum elong	4796 Feb 21 02:54	1° 44 '16	0°16'46	max. Earth dist.	4802 Mar 05 16:22	14° 56 '05	31.10831 AU
max. Earth dist.	4796 Feb 21 00:23	1° 44 '02	31.17724 AU	retrograde	4802 Jun 17 23:42	17° 26 '17	
				opposition	4802 Sep 06 04:02	16° 02 '44	0°-5'-9
				min. Earth dist.	4802 Sep 06 00:08	16° 03 '00	29.10328 AU
				direct	4802 Nov 25 01:27	14° 39 '12	
				conjunction	4803 Mar 07 22:58	17° 07 '41	0°-6'-32

minimum elong	4803 Mar 07 22:59	17° ✕ 07'41	0°06'33	retrograde	4810 Jul 06 03:07	5° Υ 06'45	
behind sun begin	4803 Mar 07 16:57	17° ✕ 07'08		opposition	4810 Sep 24 13:05	3° Υ 42'46	0°-33'-4
behind sun end	4803 Mar 08 05:00	17° ✕ 08'14		min. Earth dist.	4810 Sep 24 04:29	3° Υ 43'21	29.03267 AU
max. Earth dist.	4803 Mar 08 02:18	17° ✕ 07'58	31.09853 AU	direct	4810 Dec 12 18:30	2° Υ 19'31	
retrograde	4803 Jun 20 12:02	19° ✕ 38'18					
opposition	4803 Sep 08 17:05	18° ✕ 14'40	0°-8'-42	conjunction	4811 Mar 25 08:10	4° Υ 47'54	0°-32'-30
min. Earth dist.	4803 Sep 08 12:50	18° ✕ 14'57	29.09413 AU	minimum elong	4811 Mar 25 08:10	4° Υ 47'54	0°32'31
direct	4803 Nov 27 11:46	16° ✕ 51'10		max. Earth dist.	4811 Mar 25 17:44	4° Υ 48'48	31.02670 AU
				retrograde	4811 Jul 08 15:54	7° Υ 19'51	
conjunction	4804 Mar 09 08:45	19° ✕ 19'37	0°-9'-51	opposition	4811 Sep 27 02:13	5° Υ 55'47	0°-36'-24
minimum elong	4804 Mar 09 08:45	19° ✕ 19'37	0°09'52	min. Earth dist.	4811 Sep 26 16:08	5° Υ 56'28	29.02080 AU
behind sun begin	4804 Mar 09 03:30	19° ✕ 19'09		direct	4811 Dec 15 08:11	4° Υ 32'31	
behind sun end	4804 Mar 09 14:00	19° ✕ 20'06					
max. Earth dist.	4804 Mar 09 14:03	19° ✕ 20'06	31.08985 AU	conjunction	4812 Mar 26 18:25	7° Υ 00'52	0°-35'-35
retrograde	4804 Jun 21 22:23	21° ✕ 50'25		minimum elong	4812 Mar 26 18:25	7° Υ 00'52	0°35'37
opposition	4804 Sep 10 06:07	20° ✕ 26'44	0°-12'-16	max. Earth dist.	4812 Mar 27 03:54	7° Υ 01'46	31.01466 AU
min. Earth dist.	4804 Sep 10 00:26	20° ✕ 27'07	29.08579 AU	retrograde	4812 Jul 10 04:47	9° Υ 32'58	
direct	4804 Nov 29 00:07	19° ✕ 03'17		opposition	4812 Sep 28 15:29	8° Υ 08'47	0°-39'-41
				min. Earth dist.	4812 Sep 28 05:24	8° Υ 09'29	29.00892 AU
conjunction	4805 Mar 11 18:33	21° ✕ 31'43	0°-13'-9	direct	4812 Dec 16 19:16	6° Υ 45'31	
minimum elong	4805 Mar 11 18:33	21° ✕ 31'43	0°13'10				
behind sun begin	4805 Mar 11 14:40	21° ✕ 31'22		conjunction	4813 Mar 29 04:56	9° Υ 13'50	0°-38'-38
behind sun end	4805 Mar 11 22:26	21° ✕ 32'04		minimum elong	4813 Mar 29 04:56	9° Υ 13'50	0°38'39
max. Earth dist.	4805 Mar 11 23:44	21° ✕ 32'11	31.08190 AU	max. Earth dist.	4813 Mar 29 16:14	9° Υ 14'54	31.00295 AU
retrograde	4805 Jun 24 11:06	24° ✕ 02'41		retrograde	4813 Jul 12 15:16	11° Υ 46'04	
opposition	4805 Sep 12 19:09	22° ✕ 38'58	0°-15'-48	opposition	4813 Oct 01 04:27	10° Υ 21'48	0°-42'-54
min. Earth dist.	4805 Sep 12 12:41	22° ✕ 39'25	29.07815 AU	min. Earth dist.	4813 Sep 30 17:03	10° Υ 22'35	28.99757 AU
direct	4805 Dec 01 09:29	21° ✕ 15'34		direct	4813 Dec 19 07:59	8° Υ 58'31	
conjunction	4806 Mar 14 04:36	23° ✕ 44'00	0°-16'-27	conjunction	4814 Mar 31 15:21	11° Υ 26'49	0°-41'-37
minimum elong	4806 Mar 14 04:36	23° ✕ 44'00	0°16'28	minimum elong	4814 Mar 31 15:21	11° Υ 26'49	0°41'38
max. Earth dist.	4806 Mar 14 11:38	23° ✕ 44'39	31.07429 AU	max. Earth dist.	4814 Apr 01 02:26	11° Υ 27'52	30.99207 AU
retrograde	4806 Jun 26 22:23	26° ✕ 15'09		retrograde	4814 Jul 15 03:50	13° Υ 59'12	
opposition	4806 Sep 15 08:16	24° ✕ 51'24	0°-19'-19	opposition	4814 Oct 03 17:32	12° Υ 34'51	0°-46'-4
min. Earth dist.	4806 Sep 15 01:27	24° ✕ 51'52	29.07048 AU	min. Earth dist.	4814 Oct 03 05:22	12° Υ 35'41	28.98732 AU
direct	4806 Dec 03 20:31	23° ✕ 28'03		direct	4814 Dec 21 17:54	11° Υ 11'35	
conjunction	4807 Mar 16 14:37	25° ✕ 56'28	0°-19'-43	conjunction	4815 Apr 03 01:54	13° Υ 39'53	0°-44'-32
minimum elong	4807 Mar 16 14:37	25° ✕ 56'28	0°19'44	minimum elong	4815 Apr 03 01:54	13° Υ 39'53	0°44'33
max. Earth dist.	4807 Mar 16 21:31	25° ✕ 57'07	31.06653 AU	max. Earth dist.	4815 Apr 03 14:55	13° Υ 41'07	30.98227 AU
retrograde	4807 Jun 29 12:19	28° ✕ 27'49		retrograde	4815 Jul 17 15:07	16° Υ 12'25	
opposition	4807 Sep 17 21:21	27° ✕ 04'01	0°-22'-48	opposition	4815 Oct 06 06:36	14° Υ 48'01	0°-49'-9
min. Earth dist.	4807 Sep 17 13:19	27° ✕ 04'34	29.06251 AU	min. Earth dist.	4815 Oct 05 17:49	14° Υ 48'54	28.97812 AU
direct	4807 Dec 06 07:07	25° ✕ 40'43		direct	4815 Dec 24 05:03	13° Υ 24'46	
conjunction	4808 Mar 18 00:55	28° ✕ 09'08	0°-22'-58	conjunction	4816 Apr 04 12:28	15° Υ 53'04	0°-47'-24
minimum elong	4808 Mar 18 00:55	28° ✕ 09'08	0°22'59	minimum elong	4816 Apr 04 12:28	15° Υ 53'04	0°47'25
max. Earth dist.	4808 Mar 18 08:55	28° ✕ 09'53	31.05810 AU	max. Earth dist.	4816 Apr 05 01:35	15° Υ 54'18	30.97375 AU
	4808 May 11 15:30	0° Υ		retrograde	4816 Jul 19 04:51	18° Υ 25'46	
retrograde	4808 Jul 01 01:00	0° Υ 40'40		opposition	4816 Oct 07 19:42	17° Υ 01'20	0°-52'-11
	4808 Aug 22 16:17	30° ℞		min. Earth dist.	4816 Oct 07 05:29	17° Υ 02'18	28.97021 AU
opposition	4808 Sep 19 10:42	29° ✕ 16'49	0°-26'-16	direct	4816 Dec 25 15:30	15° Υ 38'07	
min. Earth dist.	4808 Sep 19 02:58	29° ✕ 17'21	29.05368 AU				
direct	4808 Dec 07 18:59	27° ✕ 53'33		conjunction	4817 Apr 06 23:10	18° Υ 06'25	0°-50'-11
	4809 Mar 10 19:06	0° Υ		minimum elong	4817 Apr 06 23:10	18° Υ 06'25	0°50'12
				max. Earth dist.	4817 Apr 07 13:37	18° Υ 07'48	30.96621 AU
conjunction	4809 Mar 20 11:12	0° Υ 21'58	0°-26'-11	retrograde	4817 Jul 21 17:19	20° Υ 39'17	
minimum elong	4809 Mar 20 11:12	0° Υ 21'58	0°26'12	opposition	4817 Oct 10 08:52	19° Υ 14'49	0°-55'-8
max. Earth dist.	4809 Mar 20 19:27	0° Υ 22'45	31.04881 AU	min. Earth dist.	4817 Oct 09 18:46	19° Υ 15'47	28.96310 AU
retrograde	4809 Jul 03 15:03	2° Υ 53'40		direct	4817 Dec 28 02:27	17° Υ 51'39	
opposition	4809 Sep 21 23:55	1° Υ 29'45	0°-29'-42				
min. Earth dist.	4809 Sep 21 14:39	1° Υ 30'23	29.04377 AU	conjunction	4818 Apr 09 10:02	20° Υ 19'59	0°-52'-54
direct	4809 Dec 10 06:56	0° Υ 06'30		minimum elong	4818 Apr 09 10:01	20° Υ 19'59	0°52'56
				max. Earth dist.	4818 Apr 10 00:58	20° Υ 21'24	30.95946 AU
conjunction	4810 Mar 22 21:40	2° Υ 34'55	0°-29'-22	retrograde	4818 Jul 24 07:26	22° Υ 53'00	
minimum elong	4810 Mar 22 21:40	2° Υ 34'55	0°29'23	opposition	4818 Oct 12 21:47	21° Υ 28'31	0°-58'00
max. Earth dist.	4810 Mar 23 06:09	2° Υ 35'43	31.03820 AU	min. Earth dist.	4818 Oct 12 06:06	21° Υ 29'35	28.95653 AU

direct	4818 Dec 30 13:10	20° Υ 05'22		direct	4827 Jan 17 12:47	7° \mathcal{B} 58'15	
conjunction	4819 Apr 11 20:59	22° Υ 33'45	0°-55'-33	conjunction	4827 Apr 29 16:16	10° \mathcal{B} 26'37	-1°-13'-24
minimum elong	4819 Apr 11 20:58	22° Υ 33'45	0°55'34	minimum elong	4827 Apr 29 16:16	10° \mathcal{B} 26'37	1°13'24
max. Earth dist.	4819 Apr 12 12:18	22° Υ 35'12	30.95288 AU	max. Earth dist.	4827 Apr 30 10:54	10° \mathcal{B} 28'23	30.88019 AU
retrograde	4819 Jul 26 20:52	25° Υ 06'56		retrograde	4827 Aug 14 04:35	13° \mathcal{B} 00'36	
opposition	4819 Oct 15 11:03	23° Υ 42'25	-1°00'-47	opposition	4827 Nov 02 19:27	11° \mathcal{B} 35'32	-1°-19'-27
min. Earth dist.	4819 Oct 14 19:58	23° Υ 43'27	28.95001 AU	min. Earth dist.	4827 Nov 02 00:30	11° \mathcal{B} 36'51	28.87678 AU
direct	4820 Jan 02 00:40	22° Υ 19'19		direct	4828 Jan 19 23:40	10° \mathcal{B} 12'16	
conjunction	4820 Apr 13 08:03	24° Υ 47'43	0°-58'-6	conjunction	4828 May 01 03:46	12° \mathcal{B} 40'40	-1°-15'-10
minimum elong	4820 Apr 13 08:03	24° Υ 47'43	0°58'08	minimum elong	4828 May 01 03:46	12° \mathcal{B} 40'40	1°15'11
max. Earth dist.	4820 Apr 14 00:28	24° Υ 49'16	30.94620 AU	max. Earth dist.	4828 May 01 22:50	12° \mathcal{B} 42'29	30.87230 AU
retrograde	4820 Jul 28 11:34	27° Υ 21'02			4828 Jul 16 15:34	15° \mathcal{B}	
min. Earth dist.	4820 Oct 16 07:52	25° Υ 57'37	28.94301 AU	retrograde	4828 Aug 15 17:40	15° \mathcal{B} 14'46	
opposition	4820 Oct 17 00:13	25° Υ 56'30	-1°-3'-28		4828 Sep 15 09:59	15° $\mathcal{R}\mathcal{B}$	
direct	4821 Jan 03 14:17	24° Υ 33'25		opposition	4828 Nov 04 08:24	13° \mathcal{B} 49'39	-1°-21'-17
conjunction	4821 Apr 15 19:19	27° Υ 01'51	-1°00'-35	min. Earth dist.	4828 Nov 03 13:56	13° \mathcal{B} 50'56	28.86961 AU
minimum elong	4821 Apr 15 19:19	27° Υ 01'51	1°00'35	direct	4829 Jan 21 10:59	12° \mathcal{B} 26'23	
max. Earth dist.	4821 Apr 16 11:09	27° Υ 03'21	30.93871 AU	conjunction	4829 May 03 15:38	14° \mathcal{B} 54'50	-1°-16'-49
retrograde	4821 Jul 31 01:17	29° Υ 35'19		minimum elong	4829 May 03 15:38	14° \mathcal{B} 54'50	1°16'50
opposition	4821 Oct 19 13:24	28° Υ 10'43	-1°-6'-4	max. Earth dist.	4829 May 04 11:51	14° \mathcal{B} 56'45	30.86578 AU
min. Earth dist.	4821 Oct 18 21:41	28° Υ 11'47	28.93512 AU		4829 May 05 22:10	15° \mathcal{B}	
direct	4822 Jan 06 01:29	26° Υ 47'38		retrograde	4829 Aug 18 08:13	17° \mathcal{B} 29'01	
conjunction	4822 Apr 18 06:51	29° Υ 16'05	-1°-2'-58	opposition	4829 Nov 06 20:59	16° \mathcal{B} 03'53	-1°-22'-59
minimum elong	4822 Apr 18 06:51	29° Υ 16'04	1°02'59	min. Earth dist.	4829 Nov 06 01:09	16° \mathcal{B} 05'16	28.86364 AU
max. Earth dist.	4822 Apr 18 23:48	29° Υ 17'41	30.93017 AU	direct	4829 Dec 20 13:42	15° $\mathcal{R}\mathcal{B}$	
	4822 May 07 19:25	0° \mathcal{B}			4830 Jan 23 23:50	14° \mathcal{B} 40'38	
retrograde	4822 Aug 02 13:13	1° \mathcal{B} 49'38			4830 Feb 26 14:21	15° \mathcal{B}	
min. Earth dist.	4822 Oct 21 10:05	0° \mathcal{B} 26'07	28.92592 AU	conjunction	4830 May 06 03:25	17° \mathcal{B} 09'08	-1°-18'-21
opposition	4822 Oct 22 02:33	0° \mathcal{B} 24'59	-1°-8'-34	minimum elong	4830 May 06 03:25	17° \mathcal{B} 09'08	1°18'23
	4822 Nov 06 11:18	30° $\mathcal{R}\Upsilon$		max. Earth dist.	4830 May 06 23:15	17° \mathcal{B} 11'01	30.86030 AU
direct	4823 Jan 08 14:46	29° Υ 01'54		retrograde	4830 Aug 20 22:07	19° \mathcal{B} 43'27	
	4823 Mar 09 05:32	0° \mathcal{B}		opposition	4830 Nov 09 09:50	18° \mathcal{B} 18'19	-1°-24'-34
conjunction	4823 Apr 20 18:09	1° \mathcal{B} 30'19	-1°-5'-15	min. Earth dist.	4830 Nov 08 14:29	18° \mathcal{B} 19'39	28.85871 AU
minimum elong	4823 Apr 20 18:09	1° \mathcal{B} 30'19	1°05'16	direct	4831 Jan 26 10:31	16° \mathcal{B} 55'05	
max. Earth dist.	4823 Apr 21 10:14	1° \mathcal{B} 31'50	30.92043 AU	conjunction	4831 May 08 15:21	19° \mathcal{B} 23'39	-1°-19'-46
retrograde	4823 Aug 05 02:51	4° \mathcal{B} 03'58		minimum elong	4831 May 08 15:21	19° \mathcal{B} 23'39	1°19'48
opposition	4823 Oct 24 15:45	2° \mathcal{B} 39'14	-1°-10'-58	max. Earth dist.	4831 May 09 12:37	19° \mathcal{B} 25'40	30.85570 AU
min. Earth dist.	4823 Oct 23 23:12	2° \mathcal{B} 40'22	28.91579 AU	retrograde	4831 Aug 23 11:23	21° \mathcal{B} 58'04	
direct	4824 Jan 11 02:15	1° \mathcal{B} 16'06		opposition	4831 Nov 11 22:37	20° \mathcal{B} 32'57	-1°-26'-1
conjunction	4824 Apr 22 05:42	3° \mathcal{B} 44'30	-1°-7'-26	min. Earth dist.	4831 Nov 11 02:24	20° \mathcal{B} 34'21	28.85431 AU
minimum elong	4824 Apr 22 05:42	3° \mathcal{B} 44'30	1°07'29	direct	4832 Jan 28 23:32	19° \mathcal{B} 09'45	
max. Earth dist.	4824 Apr 22 23:11	3° \mathcal{B} 46'09	30.90994 AU	conjunction	4832 May 10 03:25	21° \mathcal{B} 38'23	-1°-21'-4
retrograde	4824 Aug 06 14:21	6° \mathcal{B} 18'14		minimum elong	4832 May 10 03:25	21° \mathcal{B} 38'23	1°21'07
opposition	4824 Oct 26 04:49	4° \mathcal{B} 53'23	-1°-13'-15	max. Earth dist.	4832 May 10 23:49	21° \mathcal{B} 40'19	30.85148 AU
min. Earth dist.	4824 Oct 25 12:09	4° \mathcal{B} 54'33	28.90516 AU	retrograde	4832 Aug 25 02:40	24° \mathcal{B} 12'55	
direct	4825 Jan 12 14:42	3° \mathcal{B} 30'13		opposition	4832 Nov 13 11:25	22° \mathcal{B} 47'48	-1°-27'-21
conjunction	4825 Apr 24 17:07	5° \mathcal{B} 58'35	-1°-9'-32	min. Earth dist.	4832 Nov 12 15:21	22° \mathcal{B} 49'12	28.85018 AU
minimum elong	4825 Apr 24 17:07	5° \mathcal{B} 58'35	1°09'33	direct	4833 Jan 30 10:56	21° \mathcal{B} 24'37	
max. Earth dist.	4825 Apr 25 10:18	6° \mathcal{B} 00'13	30.89940 AU	conjunction	4833 May 12 15:48	23° \mathcal{B} 53'20	-1°-22'-15
retrograde	4825 Aug 09 03:19	8° \mathcal{B} 32'24		minimum elong	4833 May 12 15:48	23° \mathcal{B} 53'20	1°22'16
opposition	4825 Oct 28 17:47	7° \mathcal{B} 07'28	-1°-15'-26	max. Earth dist.	4833 May 13 13:17	23° \mathcal{B} 55'22	30.84706 AU
min. Earth dist.	4825 Oct 28 00:11	7° \mathcal{B} 08'41	28.89485 AU	retrograde	4833 Aug 27 14:57	26° \mathcal{B} 27'57	
direct	4826 Jan 15 01:46	5° \mathcal{B} 44'15		min. Earth dist.	4833 Nov 15 04:22	25° \mathcal{B} 04'14	28.84545 AU
conjunction	4826 Apr 27 04:41	8° \mathcal{B} 12'37	-1°-11'-31	opposition	4833 Nov 16 00:12	25° \mathcal{B} 02'51	-1°-28'-32
minimum elong	4826 Apr 27 04:41	8° \mathcal{B} 12'37	1°11'33	direct	4834 Feb 01 23:29	23° \mathcal{B} 39'41	
max. Earth dist.	4826 Apr 27 22:54	8° \mathcal{B} 14'21	30.88924 AU	conjunction	4834 May 15 04:13	26° \mathcal{B} 08'26	-1°-23'-18
retrograde	4826 Aug 11 14:41	10° \mathcal{B} 46'31		minimum elong	4834 May 15 04:12	26° \mathcal{B} 08'26	1°23'19
opposition	4826 Oct 31 06:38	9° \mathcal{B} 21'30	-1°-17'-30	max. Earth dist.	4834 May 16 00:45	26° \mathcal{B} 10'23	30.84196 AU
min. Earth dist.	4826 Oct 30 13:18	9° \mathcal{B} 22'42	28.88520 AU	retrograde	4834 Aug 30 04:21	28° \mathcal{B} 43'08	

opposition	4834 Nov 18 12:53	27° ♄ 18'00	-1°-29'-35	opposition	4842 Dec 06 16:12	15° ♊ 17'20	-1°-33'-4
min. Earth dist.	4834 Nov 17 16:46	27° ♄ 19'24	28.83991 AU	min. Earth dist.	4842 Dec 05 19:48	15° ♊ 18'45	28.80138 AU
direct	4835 Feb 04 10:42	25° ♄ 54'49		direct	4843 Feb 22 09:30	13° ♊ 53'47	
conjunction	4835 May 17 16:45	28° ♄ 23'37	-1°-24'-13	conjunction	4843 Jun 04 21:58	16° ♊ 22'49	-1°-26'-57
minimum elong	4835 May 17 16:45	28° ♄ 23'37	1°24'14	minimum elong	4843 Jun 04 21:58	16° ♊ 22'49	1°26'58
max. Earth dist.	4835 May 18 13:43	28° ♄ 25'36	30.83586 AU	max. Earth dist.	4843 Jun 05 19:33	16° ♊ 24'51	30.80061 AU
	4835 Jul 02 09:45	0° ♊		retrograde	4843 Sep 20 03:46	18° ♊ 57'37	
retrograde	4835 Sep 01 16:04	0° ♊ 58'21		min. Earth dist.	4843 Dec 08 07:36	17° ♊ 33'42	28.80185 AU
	4835 Nov 04 17:26	30° ♄		opposition	4843 Dec 09 04:23	17° ♊ 32'14	-1°-32'-52
min. Earth dist.	4835 Nov 20 06:25	29° ♄ 34'32	28.83340 AU	direct	4844 Feb 24 20:51	16° ♊ 08'42	
opposition	4835 Nov 21 01:42	29° ♄ 33'11	-1°-30'-30				
direct	4836 Feb 06 21:49	28° ♄ 09'57		conjunction	4844 Jun 06 10:59	18° ♊ 37'49	-1°-26'-42
	4836 May 01 23:39	0° ♊		minimum elong	4844 Jun 06 10:59	18° ♊ 37'49	1°26'44
conjunction	4836 May 19 05:14	0° ♊ 38'46	-1°-25'-1	max. Earth dist.	4844 Jun 07 09:14	18° ♊ 39'55	30.80139 AU
minimum elong	4836 May 19 05:14	0° ♊ 38'46	1°25'03	retrograde	4844 Sep 21 16:18	21° ♊ 12'38	
max. Earth dist.	4836 May 20 01:54	0° ♊ 40'44	30.82914 AU	opposition	4844 Dec 10 16:36	19° ♊ 47'18	-1°-32'-31
retrograde	4836 Sep 03 05:58	3° ♊ 13'32		min. Earth dist.	4844 Dec 09 20:44	19° ♊ 48'42	28.80287 AU
opposition	4836 Nov 22 14:18	1° ♊ 48'19	-1°-31'-17	direct	4845 Feb 26 08:09	18° ♊ 23'47	
min. Earth dist.	4836 Nov 21 18:07	1° ♊ 49'43	28.82643 AU	conjunction	4845 Jun 09 00:14	20° ♊ 52'58	-1°-26'-18
direct	4837 Feb 08 09:01	0° ♊ 25'01		minimum elong	4845 Jun 09 00:14	20° ♊ 52'58	1°26'19
conjunction	4837 May 21 17:48	2° ♊ 53'50	-1°-25'-41	max. Earth dist.	4845 Jun 09 21:51	20° ♊ 55'01	30.80261 AU
minimum elong	4837 May 21 17:48	2° ♊ 53'50	1°25'42	retrograde	4845 Sep 24 06:22	23° ♊ 27'49	
max. Earth dist.	4837 May 22 14:20	2° ♊ 55'47	30.82202 AU	min. Earth dist.	4845 Dec 12 08:09	22° ♊ 03'57	28.80398 AU
retrograde	4837 Sep 05 17:40	5° ♊ 28'36		opposition	4845 Dec 13 04:32	22° ♊ 02'31	-1°-32'-1
min. Earth dist.	4837 Nov 24 07:36	4° ♊ 04'40	28.81948 AU	direct	4846 Feb 28 19:28	20° ♊ 39'00	
opposition	4837 Nov 25 02:46	4° ♊ 03'19	-1°-31'-56	conjunction	4846 Jun 11 13:36	23° ♊ 08'17	-1°-25'-47
direct	4838 Feb 10 20:34	2° ♊ 39'57		minimum elong	4846 Jun 11 13:36	23° ♊ 08'17	1°25'49
conjunction	4838 May 24 06:28	5° ♊ 08'48	-1°-26'-14	max. Earth dist.	4846 Jun 12 10:41	23° ♊ 10'16	30.80341 AU
minimum elong	4838 May 24 06:28	5° ♊ 08'48	1°26'16	retrograde	4846 Sep 26 18:10	25° ♊ 43'08	
max. Earth dist.	4838 May 25 03:42	5° ♊ 10'48	30.81538 AU	opposition	4846 Dec 15 16:48	24° ♊ 17'53	-1°-31'-23
retrograde	4838 Sep 08 07:08	7° ♊ 43'33		min. Earth dist.	4846 Dec 14 21:51	24° ♊ 19'12	28.80449 AU
opposition	4838 Nov 27 15:06	6° ♊ 18'13	-1°-32'-27	direct	4847 Mar 03 06:21	22° ♊ 54'20	
min. Earth dist.	4838 Nov 26 18:52	6° ♊ 19'38	28.81320 AU	conjunction	4847 Jun 14 02:59	25° ♊ 23'41	-1°-25'-7
direct	4839 Feb 13 09:06	4° ♊ 54'47		minimum elong	4847 Jun 14 02:59	25° ♊ 23'41	1°25'08
conjunction	4839 May 26 18:51	7° ♊ 23'39	-1°-26'-38	max. Earth dist.	4847 Jun 15 00:03	25° ♊ 25'41	30.80358 AU
minimum elong	4839 May 26 18:51	7° ♊ 23'39	1°26'39	retrograde	4847 Sep 29 07:43	27° ♊ 58'31	
max. Earth dist.	4839 May 27 15:35	7° ♊ 25'36	30.80957 AU	min. Earth dist.	4847 Dec 17 09:28	26° ♊ 34'39	28.80413 AU
retrograde	4839 Sep 10 20:29	9° ♊ 58'25		opposition	4847 Dec 18 04:54	26° ♊ 33'17	-1°-30'-37
min. Earth dist.	4839 Nov 29 07:59	8° ♊ 34'24	28.80811 AU	direct	4848 Mar 04 18:29	25° ♊ 09'43	
opposition	4839 Nov 30 03:36	8° ♊ 33'02	-1°-32'-49	conjunction	4848 Jun 15 16:29	27° ♊ 39'07	-1°-24'-20
direct	4840 Feb 15 19:40	7° ♊ 09'32		minimum elong	4848 Jun 15 16:29	27° ♊ 39'07	1°24'23
conjunction	4840 May 28 07:37	9° ♊ 38'26	-1°-26'-55	max. Earth dist.	4848 Jun 16 12:16	27° ♊ 40'59	30.80282 AU
minimum elong	4840 May 28 07:37	9° ♊ 38'26	1°26'57		4848 Sep 01 17:48	0° ♄	
max. Earth dist.	4840 May 29 05:36	9° ♊ 40'30	30.80514 AU	retrograde	4848 Sep 30 20:51	0° ♄ 13'56	
retrograde	4840 Sep 12 10:03	12° ♊ 13'11			4848 Oct 30 10:22	30° ♄	
opposition	4840 Dec 01 15:46	10° ♊ 47'46	-1°-33'-2	opposition	4848 Dec 19 16:56	28° ♊ 48'41	-1°-29'-42
min. Earth dist.	4840 Nov 30 19:20	10° ♊ 49'12	28.80438 AU	min. Earth dist.	4848 Dec 18 22:56	28° ♊ 49'57	28.80307 AU
direct	4841 Feb 17 09:12	9° ♊ 24'15		direct	4849 Mar 07 04:51	27° ♊ 25'03	
conjunction	4841 May 30 20:18	11° ♊ 53'11	-1°-27'-4	conjunction	4849 Jun 18 06:08	29° ♊ 54'31	-1°-23'-25
minimum elong	4841 May 30 20:18	11° ♊ 53'11	1°27'05	minimum elong	4849 Jun 18 06:08	29° ♊ 54'31	1°23'27
max. Earth dist.	4841 May 31 17:21	11° ♊ 55'10	30.80220 AU	max. Earth dist.	4849 Jun 19 02:23	29° ♊ 56'25	30.80155 AU
retrograde	4841 Sep 15 01:15	14° ♊ 27'57			4849 Jun 20 16:20	0° ♄	
min. Earth dist.	4841 Dec 03 07:42	13° ♊ 03'57	28.80224 AU	retrograde	4849 Oct 03 10:12	2° ♄ 29'15	
opposition	4841 Dec 04 04:03	13° ♊ 02'31	-1°-33'-8	min. Earth dist.	4849 Dec 21 10:35	1° ♄ 05'18	28.80159 AU
direct	4842 Feb 19 21:01	11° ♊ 38'58		opposition	4849 Dec 22 04:48	1° ♄ 04'01	-1°-28'-40
conjunction	4842 Jun 02 09:08	14° ♊ 07'58	-1°-27'-4		4850 Feb 03 07:38	30° ♄	
minimum elong	4842 Jun 02 09:08	14° ♊ 07'58	1°27'07	direct	4850 Mar 09 18:37	29° ♊ 40'19	
max. Earth dist.	4842 Jun 03 07:27	14° ♊ 10'04	30.80070 AU		4850 Apr 12 15:57	0° ♄	
retrograde	4842 Sep 17 13:10	16° ♊ 42'44		conjunction	4850 Jun 20 19:28	2° ♄ 09'49	-1°-22'-23
				minimum elong	4850 Jun 20 19:28	2° ♄ 09'49	1°22'25

max. Earth dist.	4850 Jun 21 14:16	2°☾11'36	30.80016 AU	min. Earth dist.	4859 Jan 10 22:03	21°☾21'30	28.82794 AU
retrograde	4850 Oct 06 00:44	4°☾44'30		direct	4859 Mar 30 04:23	19°☾56'31	
opposition	4850 Dec 24 16:39	3°☾19'15	-1°-27'-29				
min. Earth dist.	4850 Dec 23 23:02	3°☾20'29	28.80043 AU	conjunction	4859 Jul 11 22:48	22°☾26'36	-1°-7'-37
direct	4851 Mar 12 06:40	1°☾55'29		minimum elong	4859 Jul 11 22:48	22°☾26'36	1°07'39
				max. Earth dist.	4859 Jul 12 14:06	22°☾28'02	30.82989 AU
conjunction	4851 Jun 23 09:03	4°☾25'03	-1°-21'-14	retrograde	4859 Oct 26 21:01	25°☾00'40	
minimum elong	4851 Jun 23 09:03	4°☾25'03	1°21'15	min. Earth dist.	4860 Jan 13 10:38	23°☾36'46	28.83272 AU
max. Earth dist.	4851 Jun 24 04:43	4°☾26'53	30.79928 AU	opposition	4860 Jan 14 00:32	23°☾35'48	-1°-11'-8
retrograde	4851 Oct 08 12:46	6°☾59'39		direct	4860 Mar 31 15:32	22°☾11'49	
min. Earth dist.	4851 Dec 26 11:00	5°☾35'37	28.79993 AU				
opposition	4851 Dec 27 04:22	5°☾34'23	-1°-26'-11	conjunction	4860 Jul 13 13:00	24°☾41'57	-1°-5'-25
direct	4852 Mar 13 19:16	4°☾10'35		minimum elong	4860 Jul 13 13:00	24°☾41'58	1°05'27
				max. Earth dist.	4860 Jul 14 04:25	24°☾43'24	30.83414 AU
conjunction	4852 Jun 24 22:30	6°☾40'11	-1°-19'-56	retrograde	4860 Oct 28 09:17	27°☾15'55	
minimum elong	4852 Jun 24 22:30	6°☾40'11	1°19'58	opposition	4861 Jan 15 11:57	25°☾51'04	-1°-8'-43
max. Earth dist.	4852 Jun 25 17:02	6°☾41'55	30.79941 AU	min. Earth dist.	4861 Jan 14 22:53	25°☾51'59	28.83634 AU
retrograde	4852 Oct 10 03:46	9°☾14'43		direct	4861 Apr 03 04:13	24°☾27'02	
opposition	4852 Dec 28 16:01	7°☾49'28	-1°-24'-44				
min. Earth dist.	4852 Dec 27 22:31	7°☾50'42	28.80065 AU	conjunction	4861 Jul 16 03:03	26°☾57'12	-1°-3'-8
direct	4853 Mar 16 07:31	6°☾25'37		minimum elong	4861 Jul 16 03:03	26°☾57'12	1°03'08
				max. Earth dist.	4861 Jul 16 16:32	26°☾58'28	30.83744 AU
conjunction	4853 Jun 27 12:08	8°☾55'16	-1°-18'-32	retrograde	4861 Oct 30 23:52	29°☾31'01	
minimum elong	4853 Jun 27 12:08	8°☾55'16	1°18'33	opposition	4862 Jan 17 23:09	28°☾06'11	-1°-6'-13
max. Earth dist.	4853 Jun 28 07:12	8°☾57'03	30.80066 AU	min. Earth dist.	4862 Jan 17 10:34	28°☾07'04	28.83929 AU
retrograde	4853 Oct 12 16:17	11°☾29'44		direct	4862 Apr 05 17:05	26°☾42'04	
min. Earth dist.	4853 Dec 30 10:57	10°☾05'40	28.80258 AU				
opposition	4853 Dec 31 03:34	10°☾04'30	-1°-23'-10	conjunction	4862 Jul 18 17:08	29°☾12'17	-1°00'-44
direct	4854 Mar 18 19:37	8°☾40'37		minimum elong	4862 Jul 18 17:08	29°☾12'17	1°00'46
				max. Earth dist.	4862 Jul 19 06:43	29°☾13'33	30.84015 AU
conjunction	4854 Jun 30 01:42	11°☾10'20	-1°-17'00		4862 Aug 09 06:47	0°♈	
minimum elong	4854 Jun 30 01:43	11°☾10'20	1°17'03	retrograde	4862 Nov 02 11:42	1°♈45'57	
max. Earth dist.	4854 Jun 30 20:08	11°☾12'03	30.80345 AU	opposition	4863 Jan 20 10:24	0°♈21'07	-1°-3'-37
retrograde	4854 Oct 15 05:49	13°☾44'44		min. Earth dist.	4863 Jan 19 23:09	0°♈21'54	28.84188 AU
opposition	4855 Jan 02 15:05	12°☾19'33	-1°-21'-28		4863 Feb 01 23:50	30°♈☾	
min. Earth dist.	4855 Jan 01 21:43	12°☾20'46	28.80604 AU	direct	4863 Apr 08 05:55	28°☾56'56	
direct	4855 Mar 21 07:27	10°☾55'39			4863 Jun 10 00:16	0°♈	
conjunction	4855 Jul 02 15:12	13°☾25'25	-1°-15'-22	conjunction	4863 Jul 21 07:01	1°♈27'10	0°-58'-16
minimum elong	4855 Jul 02 15:12	13°☾25'25	1°15'23	minimum elong	4863 Jul 21 07:01	1°♈27'10	0°58'17
max. Earth dist.	4855 Jul 03 09:28	13°☾27'08	30.80756 AU	max. Earth dist.	4863 Jul 21 19:23	1°♈28'19	30.84294 AU
retrograde	4855 Oct 17 17:09	15°☾59'46		retrograde	4863 Nov 05 01:18	4°♈00'41	
min. Earth dist.	4856 Jan 04 10:36	14°☾35'47	28.81077 AU	opposition	4864 Jan 22 21:28	2°♈35'51	-1°00'-55
opposition	4856 Jan 05 02:45	14°☾34'38	-1°-19'-39	min. Earth dist.	4864 Jan 22 09:55	2°♈36'40	28.84477 AU
direct	4856 Mar 22 18:02	13°☾10'44		direct	4864 Apr 09 18:38	1°♈11'36	
conjunction	4856 Jul 04 05:02	15°☾40'35	-1°-13'-36	conjunction	4864 Jul 22 21:03	3°♈41'52	0°-55'-42
minimum elong	4856 Jul 04 05:02	15°☾40'35	1°13'38	minimum elong	4864 Jul 22 21:03	3°♈41'52	0°55'44
max. Earth dist.	4856 Jul 04 23:18	15°☾42'18	30.81293 AU	max. Earth dist.	4864 Jul 23 08:56	3°♈42'58	30.84604 AU
retrograde	4856 Oct 19 06:56	18°☾14'52		retrograde	4864 Nov 06 12:46	6°♈15'15	
opposition	4857 Jan 06 14:04	16°☾49'49	-1°-17'-41	opposition	4865 Jan 24 08:27	4°♈50'26	0°-58'-8
min. Earth dist.	4857 Jan 05 21:27	16°☾50'59	28.81642 AU	min. Earth dist.	4865 Jan 23 22:25	4°♈51'08	28.84828 AU
direct	4857 Mar 25 05:16	15°☾25'55		direct	4865 Apr 12 05:50	3°♈26'07	
conjunction	4857 Jul 06 18:53	17°☾55'50	-1°-11'-43	conjunction	4865 Jul 25 11:03	5°♈56'25	0°-53'-3
minimum elong	4857 Jul 06 18:53	17°☾55'50	1°11'44	minimum elong	4865 Jul 25 11:03	5°♈56'25	0°53'05
max. Earth dist.	4857 Jul 07 11:57	17°☾57'27	30.81881 AU	max. Earth dist.	4865 Jul 25 22:35	5°♈57'29	30.85013 AU
retrograde	4857 Oct 21 18:56	20°☾30'05		retrograde	4865 Nov 09 02:03	8°♈29'39	
min. Earth dist.	4858 Jan 08 10:32	19°☾06'10	28.82241 AU	opposition	4866 Jan 26 19:20	7°♈04'52	0°-55'-16
opposition	4858 Jan 09 01:38	19°☾05'06	-1°-15'-37	min. Earth dist.	4866 Jan 26 08:47	7°♈05'37	28.85285 AU
direct	4858 Mar 27 15:10	17°☾41'11		direct	4866 Apr 14 17:44	5°♈40'31	
conjunction	4858 Jul 09 08:49	20°☾11'12	-1°-9'-43	conjunction	4866 Jul 28 00:46	8°♈10'51	0°-50'-20
minimum elong	4858 Jul 09 08:49	20°☾11'12	1°09'45	minimum elong	4866 Jul 28 00:47	8°♈10'51	0°50'22
max. Earth dist.	4858 Jul 10 02:08	20°☾12'49	30.82470 AU	max. Earth dist.	4866 Jul 28 11:22	8°♈11'50	30.85532 AU
retrograde	4858 Oct 24 07:17	22°☾45'22		retrograde	4866 Nov 11 12:49	10°♈43'58	
opposition	4859 Jan 11 13:05	21°☾20'27	-1°-13'-26	opposition	4867 Jan 29 06:21	9°♈19'14	0°-52'-19

min. Earth dist.	4867 Jan 28 21:02	9°Ω19'54	28.85881 AU	retrograde	4874 Nov 29 17:45	28°Ω39'21	
direct	4867 Apr 17 03:49	7°Ω54'51		opposition	4875 Feb 15 20:26	27°Ω15'10	0°-26'-15
				min. Earth dist.	4875 Feb 15 16:23	27°Ω15'27	28.92406 AU
conjunction	4867 Jul 30 14:45	10°Ω25'14	0°-47'-32	direct	4875 May 05 04:52	25°Ω50'38	
minimum elong	4867 Jul 30 14:45	10°Ω25'14	0°47'34				
max. Earth dist.	4867 Jul 31 01:44	10°Ω26'15	30.86206 AU	conjunction	4875 Aug 18 06:49	28°Ω21'30	0°-22'-57
retrograde	4867 Nov 14 00:12	12°Ω58'15		minimum elong	4875 Aug 18 06:49	28°Ω21'30	0°22'59
opposition	4868 Jan 31 17:05	11°Ω33'35	0°-49'-17	max. Earth dist.	4875 Aug 18 09:48	28°Ω21'46	30.92719 AU
min. Earth dist.	4868 Jan 31 07:35	11°Ω34'15	28.86616 AU		4875 Oct 05 02:09	0°൬	
direct	4868 Apr 18 16:14	10°Ω09'11		retrograde	4875 Dec 02 03:50	0°൬53'26	
					4876 Jan 30 18:36	30°℞Ω	
conjunction	4868 Aug 01 04:38	12°Ω39'39	0°-44'-40	opposition	4876 Feb 18 06:59	29°Ω29'17	0°-22'-47
minimum elong	4868 Aug 01 04:39	12°Ω39'39	0°44'42	min. Earth dist.	4876 Feb 18 04:38	29°Ω29'27	28.93047 AU
max. Earth dist.	4868 Aug 01 13:59	12°Ω40'31	30.87014 AU	direct	4876 May 06 15:37	28°Ω04'40	
	4868 Oct 19 02:21	15°Ω			4876 Aug 03 19:23	0°൬	
retrograde	4868 Nov 15 13:03	15°Ω12'34					
	4868 Dec 13 06:53	15°℞Ω		conjunction	4876 Aug 19 20:47	0°൬35'33	0°-19'-42
opposition	4869 Feb 02 03:57	13°Ω47'59	0°-46'-10	minimum elong	4876 Aug 19 20:47	0°൬35'33	0°19'43
min. Earth dist.	4869 Feb 01 19:16	13°Ω48'36	28.87483 AU	max. Earth dist.	4876 Aug 19 23:43	0°൬35'49	30.93371 AU
direct	4869 Apr 21 02:20	12°Ω23'34		retrograde	4876 Dec 03 14:39	3°൬07'18	
				opposition	4877 Feb 19 17:24	1°൬43'10	0°-19'-17
conjunction	4869 Aug 03 18:41	14°Ω54'08	0°-41'-43	min. Earth dist.	4877 Feb 19 15:08	1°൬43'20	28.93708 AU
minimum elong	4869 Aug 03 18:41	14°Ω54'08	0°41'44	direct	4877 May 09 04:12	0°൬18'29	
max. Earth dist.	4869 Aug 04 04:29	14°Ω55'03	30.87923 AU				
	4869 Aug 06 09:29	15°Ω		conjunction	4877 Aug 22 10:25	2°൬49'22	0°-16'-25
retrograde	4869 Nov 18 00:41	17°Ω26'57		minimum elong	4877 Aug 22 10:24	2°൬49'22	0°16'26
opposition	4870 Feb 04 14:41	16°Ω02'29	0°-43'00	max. Earth dist.	4877 Aug 22 11:38	2°൬49'28	30.94062 AU
min. Earth dist.	4870 Feb 04 06:42	16°Ω03'03	28.88412 AU	retrograde	4877 Dec 06 02:06	5°൬20'56	
	4870 Mar 18 00:04	15°℞Ω		opposition	4878 Feb 22 03:49	3°൬56'50	0°-15'-45
direct	4870 Apr 23 14:02	14°Ω38'05		min. Earth dist.	4878 Feb 22 02:23	3°൬56'56	28.94451 AU
	4870 May 29 19:28	15°Ω		direct	4878 May 11 14:04	2°൬32'05	
conjunction	4870 Aug 06 08:37	17°Ω08'44	0°-38'-43	conjunction	4878 Aug 25 00:11	5°൬02'58	0°-13'-7
minimum elong	4870 Aug 06 08:38	17°Ω08'44	0°38'44	minimum elong	4878 Aug 25 00:11	5°൬02'58	0°13'08
max. Earth dist.	4870 Aug 06 16:32	17°Ω09'28	30.88878 AU	behind sun begin	4878 Aug 24 20:24	5°൬02'38	
retrograde	4870 Nov 20 15:02	19°Ω41'27		behind sun end	4878 Aug 25 03:58	5°൬03'18	
opposition	4871 Feb 07 01:28	18°Ω17'04	0°-39'-45	max. Earth dist.	4878 Aug 25 01:53	5°൬03'07	30.94855 AU
min. Earth dist.	4871 Feb 06 17:57	18°Ω17'36	28.89366 AU	retrograde	4878 Dec 08 11:54	7°൬34'21	
direct	4871 Apr 26 02:31	16°Ω52'41		opposition	4879 Feb 24 14:11	6°൬10'18	0°-12'-12
				min. Earth dist.	4879 Feb 24 13:16	6°൬10'22	28.95301 AU
conjunction	4871 Aug 08 22:43	19°Ω23'25	0°-35'-39	direct	4879 May 14 02:11	4°൬45'30	
minimum elong	4871 Aug 08 22:44	19°Ω23'25	0°35'40				
max. Earth dist.	4871 Aug 09 06:37	19°Ω24'09	30.89801 AU	conjunction	4879 Aug 27 13:42	7°൬16'24	0°-9'-47
retrograde	4871 Nov 23 02:38	21°Ω56'02		minimum elong	4879 Aug 27 13:42	7°൬16'24	0°09'48
opposition	4872 Feb 09 12:22	20°Ω31'43	0°-36'-27	behind sun begin	4879 Aug 27 08:21	7°൬15'55	
min. Earth dist.	4872 Feb 09 06:29	20°Ω32'08	28.90250 AU	behind sun end	4879 Aug 27 19:02	7°൬16'52	
direct	4872 Apr 27 15:12	19°Ω07'19		max. Earth dist.	4879 Aug 27 13:44	7°൬16'24	30.95781 AU
				retrograde	4879 Dec 11 00:10	9°൬47'38	
conjunction	4872 Aug 10 12:53	21°Ω38'07	0°-32'-33	opposition	4880 Feb 27 00:32	8°൬23'37	0°-8'-38
minimum elong	4872 Aug 10 12:53	21°Ω38'07	0°32'34	min. Earth dist.	4880 Feb 26 23:42	8°൬23'41	28.96298 AU
max. Earth dist.	4872 Aug 10 18:56	21°Ω38'41	30.90652 AU	direct	4880 May 15 13:58	6°൬58'48	
retrograde	4872 Nov 24 16:31	24°Ω10'35					
opposition	4873 Feb 10 23:00	22°Ω46'20	0°-33'-5	conjunction	4880 Aug 29 03:29	9°൬29'44	0°-6'-28
min. Earth dist.	4873 Feb 10 17:13	22°Ω46'45	28.91049 AU	minimum elong	4880 Aug 29 03:28	9°൬29'44	0°06'29
direct	4873 Apr 30 03:56	21°Ω21'54		behind sun begin	4880 Aug 28 21:16	9°൬29'11	
				behind sun end	4880 Aug 29 09:40	9°൬30'17	
conjunction	4873 Aug 13 03:02	23°Ω52'45	0°-29'-23	max. Earth dist.	4880 Aug 29 03:54	9°൬29'46	30.96840 AU
minimum elong	4873 Aug 13 03:02	23°Ω52'45	0°29'24	retrograde	4880 Dec 12 10:38	12°൬00'49	
max. Earth dist.	4873 Aug 13 08:15	23°Ω53'14	30.91398 AU	opposition	4881 Feb 28 10:53	10°൬36'54	0°-5'-4
retrograde	4873 Nov 27 04:39	26°Ω25'03		min. Earth dist.	4881 Feb 28 11:17	10°൬36'52	28.97420 AU
opposition	4874 Feb 13 09:51	25°Ω00'50	0°-29'-42	direct	4881 May 18 01:43	9°൬12'04	
min. Earth dist.	4874 Feb 13 05:56	25°Ω01'07	28.91756 AU				
direct	4874 May 02 15:52	23°Ω36'22		conjunction	4881 Aug 31 17:02	11°൬43'03	0°-3'-7
				minimum elong	4881 Aug 31 17:02	11°൬43'03	0°03'08
conjunction	4874 Aug 15 16:54	26°Ω07'13	0°-26'-11	behind sun begin	4881 Aug 31 10:28	11°൬42'29	
minimum elong	4874 Aug 15 16:54	26°Ω07'13	0°26'13	behind sun end	4881 Aug 31 23:36	11°൬43'38	
max. Earth dist.	4874 Aug 15 21:12	26°Ω07'37	30.92082 AU	max. Earth dist.	4881 Aug 31 16:08	11°൬43'01	30.98032 AU

retrograde	4881 Dec 14 23:59	14° <u>14</u> '01		retrograde	4888 Dec 30 06:32	29° <u>14</u> '46	43
opposition	4882 Mar 02 21:11	12° <u>15</u> '01	11 0°-1'-28	opposition	4889 Mar 17 21:35	28° <u>17</u> '23	25 0°23'20
min. Earth dist.	4882 Mar 02 21:16	12° <u>15</u> '01	11 28.98653 AU	min. Earth dist.	4889 Mar 18 04:03	28° <u>17</u> '22	58 29.05967 AU
direct	4882 May 20 13:58	11° <u>17</u> '25	23	direct	4889 Jun 04 23:50	26° <u>17</u> '58	32
asc. node	4882 Aug 02 04:38	12° <u>17</u> '47	30				
conjunction	4882 Sep 03 06:33	13° <u>17</u> '56	26 0°00'18	conjunction	4889 Sep 19 05:17	29° <u>17</u> '29	46 0°23'28
minimum elong	4882 Sep 03 06:33	13° <u>17</u> '56	26 0°00'18	minimum elong	4889 Sep 19 05:17	29° <u>17</u> '29	46 0°23'28
behind sun begin	4882 Sep 02 23:59	13° <u>17</u> '55	51	max. Earth dist.	4889 Sep 18 21:27	29° <u>17</u> '29	03 31.06370 AU
behind sun end	4882 Sep 03 13:06	13° <u>17</u> '57	01		4889 Oct 02 21:07	0° <u>18</u> '	
max. Earth dist.	4882 Sep 03 05:20	13° <u>17</u> '56	23 30.99286 AU	retrograde	4890 Jan 01 16:07	1° <u>18</u> '59	33
retrograde	4882 Dec 17 11:48	16° <u>17</u> '27	16	opposition	4890 Mar 20 07:55	0° <u>18</u> '36	16 0°26'46
opposition	4883 Mar 05 07:39	15° <u>17</u> '03	32 0°02'06	min. Earth dist.	4890 Mar 20 15:45	0° <u>18</u> '35	43 29.06802 AU
min. Earth dist.	4883 Mar 05 09:27	15° <u>17</u> '03	25 28.99921 AU		4890 Apr 11 12:04	30° <u>18</u> '	
direct	4883 May 23 01:45	13° <u>17</u> '38	46	direct	4890 Jun 07 11:09	29° <u>17</u> '11	21
					4890 Aug 02 04:06	0° <u>18</u> '	
conjunction	4883 Sep 05 20:13	16° <u>17</u> '09	53 0°03'43	conjunction	4890 Sep 21 18:11	1° <u>18</u> '42	34 0°26'40
minimum elong	4883 Sep 05 20:14	16° <u>17</u> '09	53 0°03'43	minimum elong	4890 Sep 21 18:11	1° <u>18</u> '42	34 0°26'40
behind sun begin	4883 Sep 05 13:42	16° <u>17</u> '09	18	max. Earth dist.	4890 Sep 21 09:02	1° <u>18</u> '41	44 31.07233 AU
behind sun end	4883 Sep 06 02:46	16° <u>17</u> '10	27	retrograde	4891 Jan 04 04:15	4° <u>18</u> '12	11
max. Earth dist.	4883 Sep 05 18:00	16° <u>17</u> '09	43 31.00551 AU	opposition	4891 Mar 22 18:05	2° <u>18</u> '48	57 0°30'09
retrograde	4883 Dec 20 00:43	18° <u>17</u> '40	35	min. Earth dist.	4891 Mar 23 01:28	2° <u>18</u> '48	25 29.07697 AU
opposition	4884 Mar 06 17:51	17° <u>17</u> '16	58 0°05'41	direct	4891 Jun 09 23:44	1° <u>18</u> '23	59
min. Earth dist.	4884 Mar 06 19:41	17° <u>17</u> '16	50 29.01154 AU				
direct	4884 May 24 14:46	15° <u>17</u> '52	12	conjunction	4891 Sep 24 07:17	3° <u>18</u> '55	13 0°29'49
conjunction	4884 Sep 07 09:57	18° <u>17</u> '23	23 0°07'04	minimum elong	4891 Sep 24 07:16	3° <u>18</u> '55	13 0°29'48
minimum elong	4884 Sep 07 09:57	18° <u>17</u> '23	23 0°07'04	max. Earth dist.	4891 Sep 23 22:02	3° <u>18</u> '54	22 31.08159 AU
behind sun begin	4884 Sep 07 03:52	18° <u>17</u> '22	50	retrograde	4892 Jan 06 15:07	6° <u>18</u> '24	40
behind sun end	4884 Sep 07 16:02	18° <u>17</u> '23	55	opposition	4892 Mar 24 04:15	5° <u>18</u> '01	28 0°33'29
max. Earth dist.	4884 Sep 07 06:16	18° <u>17</u> '23	04 31.01736 AU	min. Earth dist.	4892 Mar 24 13:04	5° <u>18</u> '00	51 29.08682 AU
retrograde	4884 Dec 21 11:34	20° <u>17</u> '53	57	direct	4892 Jun 11 12:10	3° <u>18</u> '36	30
opposition	4885 Mar 09 04:22	19° <u>17</u> '30	25 0°09'16	conjunction	4892 Sep 25 20:15	6° <u>18</u> '07	44 0°32'55
min. Earth dist.	4885 Mar 09 08:00	19° <u>17</u> '30	10 29.02301 AU	minimum elong	4892 Sep 25 20:15	6° <u>18</u> '07	44 0°32'55
direct	4885 May 27 01:27	18° <u>17</u> '05	40	max. Earth dist.	4892 Sep 25 10:20	6° <u>18</u> '06	49 31.09202 AU
conjunction	4885 Sep 09 23:34	20° <u>17</u> '36	52 0°10'23	retrograde	4893 Jan 08 03:02	8° <u>18</u> '37	02
minimum elong	4885 Sep 09 23:34	20° <u>17</u> '36	52 0°10'23	opposition	4893 Mar 26 14:27	7° <u>18</u> '13	54 0°36'47
behind sun begin	4885 Sep 09 18:26	20° <u>17</u> '36	25	min. Earth dist.	4893 Mar 26 22:42	7° <u>18</u> '13	19 29.09775 AU
behind sun end	4885 Sep 10 04:42	20° <u>17</u> '37	20	direct	4893 Jun 14 01:44	5° <u>18</u> '48	56
max. Earth dist.	4885 Sep 09 19:29	20° <u>17</u> '36	31 31.02827 AU	conjunction	4893 Sep 28 09:01	8° <u>18</u> '20	11 0°35'58
retrograde	4885 Dec 23 22:42	23° <u>17</u> '07	18	minimum elong	4893 Sep 28 09:00	8° <u>18</u> '20	11 0°35'58
opposition	4886 Mar 11 14:45	21° <u>17</u> '43	51 0°12'49	max. Earth dist.	4893 Sep 27 22:24	8° <u>18</u> '19	12 31.10343 AU
min. Earth dist.	4886 Mar 11 18:45	21° <u>17</u> '43	34 29.03331 AU	retrograde	4894 Jan 10 13:46	10° <u>18</u> '49	22
direct	4886 May 29 14:05	20° <u>17</u> '19	05	opposition	4894 Mar 29 00:44	9° <u>18</u> '26	19 0°40'01
conjunction	4886 Sep 12 13:04	22° <u>17</u> '50	18 0°13'42	min. Earth dist.	4894 Mar 29 10:13	9° <u>18</u> '25	39 29.10971 AU
minimum elong	4886 Sep 12 13:03	22° <u>17</u> '50	18 0°13'42	direct	4894 Jun 16 12:17	8° <u>18</u> '01	22
behind sun begin	4886 Sep 12 09:40	22° <u>17</u> '50	00	conjunction	4894 Sep 30 21:54	10° <u>18</u> '32	39 0°38'58
behind sun end	4886 Sep 12 16:27	22° <u>17</u> '50	36	minimum elong	4894 Sep 30 21:54	10° <u>18</u> '32	39 0°38'59
max. Earth dist.	4886 Sep 12 06:57	22° <u>17</u> '49	45 31.03808 AU	max. Earth dist.	4894 Sep 30 11:24	10° <u>18</u> '31	41 31.11574 AU
retrograde	4886 Dec 26 10:07	25° <u>17</u> '20	35	retrograde	4895 Jan 13 01:15	13° <u>18</u> '01	42
opposition	4887 Mar 14 01:04	23° <u>17</u> '57	11 0°16'21	opposition	4895 Mar 31 10:50	11° <u>18</u> '38	45 0°43'12
min. Earth dist.	4887 Mar 14 06:13	23° <u>17</u> '56	49 29.04277 AU	min. Earth dist.	4895 Mar 31 20:30	11° <u>18</u> '38	04 29.12208 AU
direct	4887 May 31 23:51	22° <u>17</u> '32	23	direct	4895 Jun 19 01:15	10° <u>18</u> '13	50
conjunction	4887 Sep 15 02:38	25° <u>17</u> '03	37 0°16'59	conjunction	4895 Oct 03 10:44	12° <u>18</u> '45	08 0°41'55
minimum elong	4887 Sep 15 02:38	25° <u>17</u> '03	37 0°16'59	minimum elong	4895 Oct 03 10:44	12° <u>18</u> '45	08 0°41'55
max. Earth dist.	4887 Sep 14 20:33	25° <u>17</u> '03	04 31.04709 AU	max. Earth dist.	4895 Oct 02 22:35	12° <u>18</u> '44	01 31.12805 AU
retrograde	4887 Dec 28 19:18	27° <u>17</u> '33	44	retrograde	4896 Jan 15 12:29	15° <u>18</u> '14	05
opposition	4888 Mar 15 11:25	26° <u>17</u> '10	23 0°19'51	opposition	4896 Apr 01 21:09	13° <u>18</u> '51	13 0°46'18
min. Earth dist.	4888 Mar 15 17:32	26° <u>17</u> '09	57 29.05135 AU	min. Earth dist.	4896 Apr 02 07:42	13° <u>18</u> '50	28 29.13429 AU
direct	4888 Jun 02 12:17	24° <u>17</u> '45	33	direct	4896 Jun 20 11:31	12° <u>18</u> '26	19
conjunction	4888 Sep 16 15:57	27° <u>17</u> '16	47 0°20'14	conjunction	4896 Oct 04 23:41	14° <u>18</u> '57	39 0°44'47
minimum elong	4888 Sep 16 15:57	27° <u>17</u> '16	47 0°20'15	minimum elong	4896 Oct 04 23:41	14° <u>18</u> '57	39 0°44'48
max. Earth dist.	4888 Sep 16 07:49	27° <u>17</u> '16	02 31.05548 AU	max. Earth dist.	4896 Oct 04 11:41	14° <u>18</u> '56	32 31.13977 AU

retrograde	4897 Jan 16 21:18	17° 2 26'28		retrograde	4905 Feb 04 09:23	5° 0 00'52	
opposition	4897 Apr 04 07:30	16° 2 03'41	0°49'21	opposition	4905 Apr 22 18:02	3° 0 38'19	1°10'38
min. Earth dist.	4897 Apr 04 19:03	16° 2 02'52	29.14549 AU	min. Earth dist.	4905 Apr 23 09:48	3° 0 37'13	29.20576 AU
direct	4897 Jun 22 23:56	14° 2 38'48		direct	4905 Jul 11 23:32	2° 0 13'16	
conjunction	4897 Oct 07 12:25	17° 2 10'07	0°47'36	conjunction	4905 Oct 26 14:51	4° 0 44'24	1°07'11
minimum elong	4897 Oct 07 12:25	17° 2 10'07	0°47'36	minimum elong	4905 Oct 26 14:51	4° 0 44'24	1°07'11
max. Earth dist.	4897 Oct 06 22:21	17° 2 08'49	31.15043 AU	max. Earth dist.	4905 Oct 25 21:36	4° 0 42'48	31.20950 AU
retrograde	4898 Jan 19 08:15	19° 2 38'49		retrograde	4906 Feb 06 17:47	7° 0 12'03	
opposition	4898 Apr 06 17:51	18° 2 16'05	0°52'19	opposition	4906 Apr 25 04:24	5° 0 49'34	1°12'51
min. Earth dist.	4898 Apr 07 05:42	18° 2 15'15	29.15563 AU	min. Earth dist.	4906 Apr 25 20:32	5° 0 48'27	29.21464 AU
direct	4898 Jun 25 10:37	16° 2 51'11		direct	4906 Jul 14 11:40	4° 0 24'33	
max. Earth dist.	4898 Oct 09 11:13	19° 2 21'13	31.15980 AU	max. Earth dist.	4906 Oct 28 07:55	6° 0 53'58	31.21887 AU
conjunction	4898 Oct 10 01:08	19° 2 22'30	0°50'21	conjunction	4906 Oct 29 02:30	6° 0 55'41	1°09'13
minimum elong	4898 Oct 10 01:08	19° 2 22'30	0°50'21	minimum elong	4906 Oct 29 02:30	6° 0 55'41	1°09'14
retrograde	4899 Jan 21 17:30	21° 2 51'04		retrograde	4907 Feb 09 04:25	9° 0 23'16	
opposition	4899 Apr 09 04:19	20° 2 28'22	0°55'12	opposition	4907 Apr 27 14:41	8° 0 00'52	1°14'58
min. Earth dist.	4899 Apr 09 17:48	20° 2 27'25	29.16435 AU	min. Earth dist.	4907 Apr 28 06:31	7° 0 59'46	29.22435 AU
direct	4899 Jun 27 21:35	19° 2 03'27		direct	4907 Jul 16 21:42	6° 0 35'53	
conjunction	4899 Oct 12 13:46	21° 2 34'45	0°53'00	conjunction	4907 Oct 31 14:23	9° 0 07'04	1°11'09
minimum elong	4899 Oct 12 13:46	21° 2 34'45	0°53'00	minimum elong	4907 Oct 31 14:23	9° 0 07'04	1°11'09
max. Earth dist.	4899 Oct 11 22:09	21° 2 33'18	31.16794 AU	max. Earth dist.	4907 Oct 30 20:32	9° 0 05'24	31.22864 AU
retrograde	4900 Jan 24 04:37	24° 2 03'09		retrograde	4908 Feb 11 13:32	11° 0 34'35	
opposition	4900 Apr 11 14:30	22° 2 40'30	0°58'00	opposition	4908 Apr 29 01:07	10° 0 12'16	1°16'59
min. Earth dist.	4900 Apr 12 03:49	22° 2 39'34	29.17192 AU	min. Earth dist.	4908 Apr 29 18:16	10° 0 11'05	29.23411 AU
direct	4900 Jun 30 10:16	21° 2 15'33		direct	4908 Jul 18 07:36	8° 0 47'20	
max. Earth dist.	4900 Oct 14 10:30	23° 2 45'20	31.17492 AU	max. Earth dist.	4908 Nov 01 07:03	11° 0 16'45	31.23827 AU
conjunction	4900 Oct 15 02:23	23° 2 46'49	0°55'35	conjunction	4908 Nov 02 02:05	11° 0 18'31	1°12'59
minimum elong	4900 Oct 15 02:23	23° 2 46'49	0°55'36	minimum elong	4908 Nov 02 02:05	11° 0 18'31	1°13'00
retrograde	4901 Jan 26 14:40	26° 2 15'05		retrograde	4909 Feb 13 00:18	13° 0 45'59	
opposition	4901 Apr 14 00:57	24° 2 52'26	1°00'43	opposition	4909 May 01 11:34	12° 0 23'45	1°18'53
min. Earth dist.	4901 Apr 14 15:54	24° 2 51'23	29.17859 AU	min. Earth dist.	4909 May 02 04:11	12° 0 22'36	29.24344 AU
direct	4901 Jul 02 22:26	23° 2 27'27		direct	4909 Jul 20 19:38	10° 0 58'51	
conjunction	4901 Oct 17 14:36	25° 2 58'40	0°58'05	conjunction	4909 Nov 04 13:42	13° 0 30'02	1°14'42
minimum elong	4901 Oct 17 14:36	25° 2 58'40	0°58'05	minimum elong	4909 Nov 04 13:42	13° 0 30'02	1°14'42
max. Earth dist.	4901 Oct 16 21:58	25° 2 57'08	31.18133 AU	max. Earth dist.	4909 Nov 03 18:41	13° 0 28'16	31.24704 AU
retrograde	4902 Jan 29 01:42	28° 2 26'48			4909 Dec 17 19:22	15° 0	
opposition	4902 Apr 16 11:12	27° 2 04'09	1°03'20	retrograde	4910 Feb 15 10:14	15° 0 57'27	
min. Earth dist.	4902 Apr 17 01:44	27° 2 03'08	29.18478 AU		4910 Apr 18 19:15	15° 0 11'00	
direct	4902 Jul 05 12:04	25° 2 39'08		opposition	4910 May 03 22:15	14° 0 35'15	1°20'40
max. Earth dist.	4902 Oct 19 09:28	28° 2 08'43	31.18741 AU	min. Earth dist.	4910 May 04 16:20	14° 0 34'00	29.25178 AU
conjunction	4902 Oct 20 02:49	28° 2 10'20	1°00'30	direct	4910 Jul 23 06:51	13° 0 10'24	
minimum elong	4902 Oct 20 02:49	28° 2 10'20	1°00'31		4910 Oct 19 04:00	15° 0	
	4902 Dec 14 07:38	0° 0		max. Earth dist.	4910 Nov 06 05:38	15° 0 39'43	31.25479 AU
retrograde	4903 Jan 31 12:04	0° 0 38'19		conjunction	4910 Nov 07 01:21	15° 0 41'33	1°16'19
	4903 Mar 21 22:52	30° 0 15'41		minimum elong	4910 Nov 07 01:21	15° 0 41'33	1°16'20
opposition	4903 Apr 18 21:25	29° 0 15'41	1°05'52	retrograde	4911 Feb 17 21:07	18° 0 08'54	
min. Earth dist.	4903 Apr 19 13:10	29° 0 14'35	29.19111 AU	opposition	4911 May 06 08:41	16° 0 46'45	1°22'20
direct	4903 Jul 07 23:07	27° 0 50'38		min. Earth dist.	4911 May 07 02:26	16° 0 45'31	29.25884 AU
	4903 Oct 12 19:07	0° 0		direct	4911 Jul 25 19:34	15° 0 21'53	
conjunction	4903 Oct 22 15:00	0° 0 21'48	1°02'49	conjunction	4911 Nov 09 13:01	17° 0 53'01	1°17'49
minimum elong	4903 Oct 22 15:00	0° 0 21'48	1°02'49	minimum elong	4911 Nov 09 13:01	17° 0 53'01	1°17'49
max. Earth dist.	4903 Oct 21 21:56	0° 0 20'13	31.19393 AU	max. Earth dist.	4911 Nov 08 16:24	17° 0 51'07	31.26112 AU
retrograde	4904 Feb 02 22:45	2° 0 49'39		retrograde	4912 Feb 20 08:00	20° 0 20'17	
opposition	4904 Apr 20 07:43	1° 0 27'03	1°08'18	opposition	4912 May 07 19:24	18° 0 58'09	1°23'53
min. Earth dist.	4904 Apr 20 23:17	1° 0 25'58	29.19790 AU	min. Earth dist.	4912 May 08 14:22	18° 0 56'50	29.26465 AU
direct	4904 Jul 09 12:51	0° 0 01'59		direct	4912 Jul 27 06:58	17° 0 33'17	
max. Earth dist.	4904 Oct 23 08:45	2° 0 31'27	31.20112 AU	max. Earth dist.	4912 Nov 10 04:07	20° 0 02'29	31.26628 AU
conjunction	4904 Oct 24 02:53	2° 0 33'08	1°05'03	conjunction	4912 Nov 11 00:31	20° 0 04'23	1°19'13
minimum elong	4904 Oct 24 02:53	2° 0 33'08	1°05'04	minimum elong	4912 Nov 11 00:30	20° 0 04'23	1°19'14

retrograde	4913 Feb 21 18:55	22°M31'32		retrograde	4921 Mar 11 01:23	9°J56'28	
opposition	4913 May 10 06:04	21°M09'25	1°25'18	opposition	4921 May 27 19:56	8°J34'30	1°32'10
min. Earth dist.	4913 May 11 01:04	21°M08'06	29.26918 AU	min. Earth dist.	4921 May 28 15:24	8°J33'10	29.30898 AU
direct	4913 Jul 29 21:31	19°M44'32		direct	4921 Aug 16 16:23	7°J09'45	
				max. Earth dist.	4921 Nov 30 06:37	9°J38'35	31.31108 AU
conjunction	4913 Nov 13 11:50	22°M15'34	1°20'29	conjunction	4921 Dec 01 02:54	9°J40'28	1°26'26
minimum elong	4913 Nov 13 11:50	22°M15'34	1°20'30	minimum elong	4921 Dec 01 02:54	9°J40'28	1°26'27
max. Earth dist.	4913 Nov 12 14:11	22°M13'34	31.27037 AU	retrograde	4922 Mar 13 12:25	12°J07'10	
retrograde	4914 Feb 24 05:22	24°M42'38		opposition	4922 May 30 06:53	10°J45'16	1°32'26
opposition	4914 May 12 16:38	23°M20'30	1°26'36	min. Earth dist.	4922 May 31 02:15	10°J43'56	29.31466 AU
min. Earth dist.	4914 May 13 11:58	23°M19'10	29.27303 AU	direct	4922 Aug 19 05:56	9°J20'33	
direct	4914 Aug 01 08:57	21°M55'35					
conjunction	4914 Nov 15 23:06	24°M26'34	1°21'39	conjunction	4922 Dec 03 13:33	11°J51'16	1°26'37
minimum elong	4914 Nov 15 23:06	24°M26'33	1°21'41	minimum elong	4922 Dec 03 13:33	11°J51'16	1°26'39
max. Earth dist.	4914 Nov 15 02:17	24°M24'38	31.27390 AU	max. Earth dist.	4922 Dec 02 16:09	11°J49'17	31.31621 AU
retrograde	4915 Feb 26 13:40	26°M53'30		retrograde	4923 Mar 15 23:44	14°J17'59	
opposition	4915 May 15 03:19	25°M31'22	1°27'47	opposition	4923 Jun 01 18:00	12°J56'06	1°32'35
min. Earth dist.	4915 May 15 23:10	25°M30'00	29.27635 AU	min. Earth dist.	4923 Jun 02 13:29	12°J54'46	29.31923 AU
direct	4915 Aug 03 21:58	24°M06'26		direct	4923 Aug 21 16:59	11°J31'27	
				max. Earth dist.	4923 Dec 05 03:43	14°J00'14	31.31999 AU
conjunction	4915 Nov 18 10:07	26°M37'19	1°22'42	conjunction	4923 Dec 06 00:17	14°J02'09	1°26'41
minimum elong	4915 Nov 18 10:07	26°M37'19	1°22'42	minimum elong	4923 Dec 06 00:17	14°J02'09	1°26'41
max. Earth dist.	4915 Nov 17 12:07	26°M35'17	31.27726 AU	retrograde	4924 Mar 17 08:44	16°J28'51	
retrograde	4916 Feb 28 23:58	29°M04'10		opposition	4924 Jun 03 05:12	15°J07'01	1°32'35
opposition	4916 May 16 13:52	27°M42'02	1°28'51	min. Earth dist.	4924 Jun 04 01:17	15°J05'38	29.32222 AU
min. Earth dist.	4916 May 17 09:06	27°M40'42	29.27994 AU	direct	4924 Aug 23 05:58	13°J42'23	
direct	4916 Aug 05 09:15	26°M17'03					
conjunction	4916 Nov 19 21:10	28°M47'54	1°23'38	conjunction	4924 Dec 07 10:48	16°J13'03	1°26'38
minimum elong	4916 Nov 19 21:10	28°M47'54	1°23'39	minimum elong	4924 Dec 07 10:48	16°J13'03	1°26'39
max. Earth dist.	4916 Nov 19 00:18	28°M45'57	31.28108 AU	max. Earth dist.	4924 Dec 06 12:59	16°J11'01	31.32232 AU
	4916 Dec 23 13:20	0°J		retrograde	4925 Mar 19 19:53	18°J39'44	
retrograde	4917 Mar 02 08:25	1°J14'40		opposition	4925 Jun 05 16:26	17°J17'54	1°32'27
	4917 May 14 12:05	30°RM		min. Earth dist.	4925 Jun 06 11:55	17°J16'34	29.32387 AU
opposition	4917 May 19 00:42	29°M52'31	1°29'46	direct	4925 Aug 25 17:38	15°J53'18	
min. Earth dist.	4917 May 19 20:41	29°M51'09	29.28423 AU				
direct	4917 Aug 07 20:11	28°M27'34		conjunction	4925 Dec 09 21:18	18°J23'55	1°26'27
	4917 Oct 26 11:35	0°J		minimum elong	4925 Dec 09 21:18	18°J23'55	1°26'27
max. Earth dist.	4917 Nov 21 10:31	0°J56'21	31.28594 AU	max. Earth dist.	4925 Dec 09 00:22	18°J21'57	31.32321 AU
				retrograde	4926 Mar 22 04:43	20°J50'35	
conjunction	4917 Nov 22 07:50	0°J58'20	1°24'26	opposition	4926 Jun 08 03:47	19°J28'45	1°32'12
minimum elong	4917 Nov 22 07:50	0°J58'20	1°24'26	min. Earth dist.	4926 Jun 09 00:19	19°J27'21	29.32410 AU
retrograde	4918 Mar 04 18:10	3°J25'03		direct	4926 Aug 28 05:10	18°J04'09	
opposition	4918 May 21 11:22	2°J02'56	1°30'34	max. Earth dist.	4926 Dec 11 10:05	20°J32'40	31.32298 AU
min. Earth dist.	4918 May 22 06:07	2°J01'39	29.28959 AU				
direct	4918 Aug 10 07:48	0°J38'00		conjunction	4926 Dec 12 07:40	20°J34'41	1°26'09
				minimum elong	4926 Dec 12 07:40	20°J34'41	1°26'10
conjunction	4918 Nov 24 18:43	3°J08'45	1°25'07	retrograde	4927 Mar 24 14:00	23°J01'20	
minimum elong	4918 Nov 24 18:43	3°J08'45	1°25'08	opposition	4927 Jun 10 14:51	21°J39'29	1°31'48
max. Earth dist.	4918 Nov 23 22:00	3°J06'49	31.29173 AU	min. Earth dist.	4927 Jun 11 10:23	21°J38'09	29.32336 AU
retrograde	4919 Mar 07 03:35	5°J35'26		direct	4927 Aug 30 17:07	20°J14'52	
opposition	4919 May 23 22:05	4°J13'22	1°31'14				
min. Earth dist.	4919 May 24 17:43	4°J12'01	29.29584 AU	conjunction	4927 Dec 14 18:02	22°J45'20	1°25'43
direct	4919 Aug 12 17:49	2°J48'28		minimum elong	4927 Dec 14 18:02	22°J45'20	1°25'43
max. Earth dist.	4919 Nov 26 08:50	5°J17'17	31.29832 AU	max. Earth dist.	4927 Dec 13 20:58	22°J43'22	31.32190 AU
				retrograde	4928 Mar 25 23:08	25°J11'58	
conjunction	4919 Nov 27 05:31	5°J19'12	1°25'41	opposition	4928 Jun 12 02:17	23°J50'05	1°31'17
minimum elong	4919 Nov 27 05:31	5°J19'12	1°25'41	min. Earth dist.	4928 Jun 12 22:34	23°J48'42	29.32222 AU
retrograde	4920 Mar 08 14:15	7°J45'53		direct	4928 Sep 01 03:07	22°J25'27	
opposition	4920 May 25 08:55	6°J23'52	1°31'46	max. Earth dist.	4928 Dec 15 07:28	24°J53'55	31.32083 AU
min. Earth dist.	4920 May 26 03:39	6°J22'35	29.30247 AU				
direct	4920 Aug 14 05:38	4°J59'02		conjunction	4928 Dec 16 04:04	24°J55'50	1°25'10
				minimum elong	4928 Dec 16 04:04	24°J55'50	1°25'12
conjunction	4920 Nov 28 16:09	7°J29'46	1°26'07	retrograde	4929 Mar 28 09:05	27°J22'28	
minimum elong	4920 Nov 28 16:09	7°J29'46	1°26'09	opposition	4929 Jun 14 13:36	26°J00'33	1°30'39
max. Earth dist.	4920 Nov 27 19:12	7°J27'49	31.30489 AU	min. Earth dist.	4929 Jun 15 08:35	25°J59'15	29.32126 AU

direct	4929 Sep 03 14:42	24° 2 35'55		direct	4937 Sep 21 12:03	12° 3 00'42	
conjunction	4929 Dec 18 14:07	27° 2 06'14	1°24'31	conjunction	4938 Jan 04 21:37	14° 3 30'40	1°14'54
minimum elong	4929 Dec 18 14:07	27° 2 06'14	1°24'31	minimum elong	4938 Jan 04 21:37	14° 3 30'40	1°14'55
max. Earth dist.	4929 Dec 17 17:34	27° 2 04'18	31.32018 AU	max. Earth dist.	4938 Jan 04 04:13	14° 3 29'02	31.31752 AU
retrograde	4930 Mar 30 19:58	29° 2 32'52		retrograde	4938 Apr 17 06:59	16° 3 57'40	
opposition	4930 Jun 17 00:55	28° 2 10'55	1°29'52	opposition	4938 Jul 04 22:14	15° 3 35'43	1°19'07
min. Earth dist.	4930 Jun 17 20:02	28° 2 09'37	29.32112 AU	min. Earth dist.	4938 Jul 05 14:36	15° 3 34'36	29.31575 AU
direct	4930 Sep 06 01:35	26° 2 46'18		direct	4938 Sep 23 23:56	14° 3 11'24	
max. Earth dist.	4930 Dec 20 04:57	29° 2 14'47	31.32048 AU				
conjunction	4930 Dec 21 00:12	29° 2 16'35	1°23'43	conjunction	4939 Jan 07 07:26	16° 3 41'18	1°13'12
minimum elong	4930 Dec 21 00:12	29° 2 16'35	1°23'45	minimum elong	4939 Jan 07 07:26	16° 3 41'18	1°13'14
	4931 Jan 09 14:50	0° 3		max. Earth dist.	4939 Jan 06 13:40	16° 3 39'38	31.31240 AU
retrograde	4931 Apr 02 06:47	1° 3 43'14		retrograde	4939 Apr 19 17:59	19° 3 08'22	
opposition	4931 Jun 19 12:19	0° 3 21'17	1°28'58	opposition	4939 Jul 07 10:12	17° 3 46'20	1°17'15
min. Earth dist.	4931 Jun 20 06:43	0° 3 20'02	29.32167 AU	min. Earth dist.	4939 Jul 08 02:54	17° 3 45'12	29.31009 AU
	4931 Jul 02 15:53	30° R 2		direct	4939 Sep 26 10:38	16° 3 22'02	
direct	4931 Sep 08 14:34	28° 2 56'43		conjunction	4940 Jan 09 17:08	18° 3 51'51	1°11'24
	4931 Nov 12 01:45	0° 3		minimum elong	4940 Jan 09 17:09	18° 3 51'51	1°11'24
				max. Earth dist.	4940 Jan 09 00:43	18° 3 50'18	31.30632 AU
conjunction	4931 Dec 23 10:04	1° 3 26'57	1°22'49	retrograde	4940 Apr 21 04:24	21° 3 18'57	
minimum elong	4931 Dec 23 10:04	1° 3 26'57	1°22'49	opposition	4940 Jul 08 22:12	19° 3 56'52	1°15'17
max. Earth dist.	4931 Dec 22 14:23	1° 3 25'06	31.32142 AU	min. Earth dist.	4940 Jul 09 14:13	19° 3 55'46	29.30359 AU
retrograde	4932 Apr 03 18:05	3° 3 53'39		direct	4940 Sep 27 23:20	18° 3 32'32	
opposition	4932 Jun 20 23:46	2° 3 31'43	1°27'56	max. Earth dist.	4941 Jan 10 09:52	21° 3 00'42	31.29979 AU
min. Earth dist.	4932 Jun 21 17:35	2° 3 30'30	29.32287 AU				
direct	4932 Sep 10 00:56	1° 3 07'11		conjunction	4941 Jan 11 02:39	21° 3 02'17	1°09'30
				minimum elong	4941 Jan 11 02:39	21° 3 02'17	1°09'31
conjunction	4932 Dec 24 20:06	3° 3 37'24	1°21'47	retrograde	4941 Apr 23 15:55	23° 3 29'27	
minimum elong	4932 Dec 24 20:06	3° 3 37'24	1°21'48	opposition	4941 Jul 11 10:08	22° 3 07'17	1°13'12
max. Earth dist.	4932 Dec 24 01:55	3° 3 35'42	31.32272 AU	min. Earth dist.	4941 Jul 12 01:19	22° 3 06'15	29.29721 AU
retrograde	4933 Apr 06 03:55	6° 3 04'09		direct	4941 Sep 30 09:33	20° 3 42'57	
opposition	4933 Jun 23 11:24	4° 3 42'14	1°26'46				
min. Earth dist.	4933 Jun 24 05:18	4° 3 41'00	29.32408 AU	conjunction	4942 Jan 13 12:10	23° 3 12'37	1°07'30
direct	4933 Sep 12 13:56	3° 3 17'46		minimum elong	4942 Jan 13 12:10	23° 3 12'37	1°07'30
max. Earth dist.	4933 Dec 26 10:59	5° 3 46'10	31.32384 AU	max. Earth dist.	4942 Jan 12 21:13	23° 3 11'13	31.29359 AU
				retrograde	4942 Apr 26 01:52	25° 3 39'51	
conjunction	4933 Dec 27 05:51	5° 3 47'56	1°20'38	opposition	4942 Jul 13 22:11	24° 3 17'38	1°11'01
minimum elong	4933 Dec 27 05:51	5° 3 47'56	1°20'38	min. Earth dist.	4942 Jul 14 13:02	24° 3 16'38	29.29129 AU
retrograde	4934 Apr 08 15:54	8° 3 14'44		direct	4942 Oct 02 22:46	22° 3 53'20	
opposition	4934 Jun 25 22:57	6° 3 52'50	1°25'29				
min. Earth dist.	4934 Jun 26 15:54	6° 3 51'41	29.32488 AU	conjunction	4943 Jan 15 21:34	25° 3 22'57	1°05'24
direct	4934 Sep 15 02:03	5° 3 28'25		minimum elong	4943 Jan 15 21:34	25° 3 22'57	1°05'25
				max. Earth dist.	4943 Jan 15 06:25	25° 3 21'32	31.28820 AU
conjunction	4934 Dec 29 15:54	7° 3 58'34	1°19'22	retrograde	4943 Apr 28 14:09	27° 3 50'16	
minimum elong	4934 Dec 29 15:54	7° 3 58'34	1°19'23	opposition	4943 Jul 16 10:04	26° 3 28'01	1°08'43
max. Earth dist.	4934 Dec 28 22:06	7° 3 56'54	31.32414 AU	min. Earth dist.	4943 Jul 16 23:18	26° 3 27'07	29.28636 AU
retrograde	4935 Apr 11 01:12	10° 3 25'25		direct	4943 Oct 05 10:52	25° 3 03'45	
opposition	4935 Jun 28 10:41	9° 3 03'31	1°24'04				
min. Earth dist.	4935 Jun 29 04:30	9° 3 02'19	29.32464 AU	conjunction	4944 Jan 18 07:07	27° 3 33'20	1°03'13
direct	4935 Sep 17 13:49	7° 3 39'10		minimum elong	4944 Jan 18 07:07	27° 3 33'20	1°03'13
max. Earth dist.	4935 Dec 31 07:42	10° 3 07'33	31.32339 AU	max. Earth dist.	4944 Jan 17 17:35	27° 3 32'04	31.28374 AU
					4944 Apr 23 05:30	0° ≈	
conjunction	4936 Jan 01 01:50	10° 3 09'15	1°17'59	retrograde	4944 Apr 29 23:57	0° ≈ 00'46	
minimum elong	4936 Jan 01 01:50	10° 3 09'15	1°17'59		4944 May 06 16:49	30° R 3	
retrograde	4936 Apr 12 11:11	12° 3 36'09		opposition	4944 Jul 17 22:18	28° 3 38'30	1°06'20
opposition	4936 Jun 29 22:30	11° 3 14'15	1°22'32	min. Earth dist.	4944 Jul 18 11:41	28° 3 37'35	29.28231 AU
min. Earth dist.	4936 Jun 30 15:05	11° 3 13'08	29.32315 AU	direct	4944 Oct 06 22:26	27° 3 14'18	
direct	4936 Sep 19 01:44	9° 3 49'55					
				conjunction	4945 Jan 19 16:24	29° 3 43'50	1°00'56
conjunction	4937 Jan 02 11:41	12° 3 19'58	1°16'30	minimum elong	4945 Jan 19 16:24	29° 3 43'50	1°00'57
minimum elong	4937 Jan 02 11:41	12° 3 19'58	1°16'31	max. Earth dist.	4945 Jan 19 03:21	29° 3 42'37	31.28016 AU
max. Earth dist.	4937 Jan 01 17:57	12° 3 18'18	31.32113 AU		4945 Jan 26 20:25	0° ≈	
retrograde	4937 Apr 14 20:53	14° 3 46'56		retrograde	4945 May 02 10:05	2° ≈ 11'23	
opposition	4937 Jul 02 10:31	13° 3 25'00	1°20'53	opposition	4945 Jul 20 10:24	0° ≈ 49'07	1°03'51
min. Earth dist.	4937 Jul 03 03:53	13° 3 23'49	29.32022 AU	min. Earth dist.	4945 Jul 20 22:00	0° ≈ 48'20	29.27885 AU

	4945 Aug 21 15:56	30° $\overset{\circ}{\text{R}}\overset{\circ}{\text{Z}}$		max. Earth dist.	4953 Feb 05 12:23	17° \approx 11'19	31.23179 AU
direct	4945 Oct 09 10:17	29° $\overset{\circ}{\text{Z}}\overset{\circ}{\text{A}}\overset{\circ}{\text{S}}\overset{\circ}{\text{9}}$		retrograde	4953 May 20 03:08	19° \approx 40'33	
	4945 Nov 25 05:19	0° \approx		opposition	4953 Aug 07 14:05	18° \approx 17'53	0°40'55
				min. Earth dist.	4953 Aug 07 22:20	18° \approx 17'20	29.22718 AU
conjunction	4946 Jan 22 01:53	1° \approx 54'31	0°58'33	direct	4953 Oct 27 04:46	16° \approx 53'58	
minimum elong	4946 Jan 22 01:53	1° \approx 54'31	0°58'34				
max. Earth dist.	4946 Jan 21 13:35	1° \approx 53'22	31.27679 AU	conjunction	4954 Feb 08 05:59	19° \approx 23'01	0°36'50
retrograde	4946 May 04 20:18	4° \approx 22'11		minimum elong	4954 Feb 08 05:59	19° \approx 23'01	0°36'50
opposition	4946 Jul 22 22:33	2° \approx 59'56	1°01'16	max. Earth dist.	4954 Feb 07 22:24	19° \approx 22'18	31.22238 AU
min. Earth dist.	4946 Jul 23 10:32	2° \approx 59'07	29.27550 AU	retrograde	4954 May 22 13:54	21° \approx 51'33	
direct	4946 Oct 11 20:18	1° \approx 35'52		opposition	4954 Aug 10 02:25	20° \approx 28'49	0°37'45
				min. Earth dist.	4954 Aug 10 08:45	20° \approx 28'23	29.21797 AU
conjunction	4947 Jan 24 11:25	4° \approx 05'22	0°56'06	direct	4954 Oct 29 17:37	19° \approx 04'53	
minimum elong	4947 Jan 24 11:26	4° \approx 05'22	0°56'07				
max. Earth dist.	4947 Jan 24 00:01	4° \approx 04'17	31.27336 AU	conjunction	4955 Feb 10 15:26	21° \approx 33'53	0°33'50
retrograde	4947 May 07 06:48	6° \approx 33'10		minimum elong	4955 Feb 10 15:26	21° \approx 33'53	0°33'51
opposition	4947 Jul 25 10:50	5° \approx 10'54	0°58'35	max. Earth dist.	4955 Feb 10 08:42	21° \approx 33'15	31.21352 AU
min. Earth dist.	4947 Jul 25 21:26	5° \approx 10'11	29.27169 AU	retrograde	4955 May 25 00:46	24° \approx 02'32	
direct	4947 Oct 14 08:01	3° \approx 46'54		opposition	4955 Aug 12 15:08	22° \approx 39'43	0°34'31
				min. Earth dist.	4955 Aug 12 21:23	22° \approx 39'17	29.20966 AU
conjunction	4948 Jan 26 20:49	6° \approx 16'22	0°53'33	direct	4955 Nov 01 04:42	21° \approx 15'49	
minimum elong	4948 Jan 26 20:50	6° \approx 16'22	0°53'33				
max. Earth dist.	4948 Jan 26 09:19	6° \approx 15'17	31.26920 AU	conjunction	4956 Feb 13 00:45	23° \approx 44'44	0°30'47
retrograde	4948 May 08 18:10	8° \approx 44'19		minimum elong	4956 Feb 13 00:45	23° \approx 44'44	0°30'47
opposition	4948 Jul 26 23:21	7° \approx 22'01	0°55'50	max. Earth dist.	4956 Feb 12 19:30	23° \approx 44'15	31.20577 AU
min. Earth dist.	4948 Jul 27 10:00	7° \approx 21'18	29.26717 AU	retrograde	4956 May 26 11:07	26° \approx 13'32	
direct	4948 Oct 15 18:02	5° \approx 58'04		opposition	4956 Aug 14 03:45	24° \approx 50'40	0°31'15
				min. Earth dist.	4956 Aug 14 08:04	24° \approx 50'22	29.20230 AU
conjunction	4949 Jan 28 06:29	8° \approx 27'29	0°50'56	direct	4956 Nov 02 16:54	23° \approx 26'49	
minimum elong	4949 Jan 28 06:29	8° \approx 27'30	0°50'57				
max. Earth dist.	4949 Jan 27 20:25	8° \approx 26'33	31.26416 AU	conjunction	4957 Feb 14 10:07	25° \approx 55'42	0°27'42
retrograde	4949 May 11 04:54	10° \approx 55'34		minimum elong	4957 Feb 14 10:07	25° \approx 55'42	0°27'43
opposition	4949 Jul 29 11:47	9° \approx 33'14	0°52'59	max. Earth dist.	4957 Feb 14 05:06	25° \approx 55'14	31.19891 AU
min. Earth dist.	4949 Jul 29 21:48	9° \approx 32'33	29.26144 AU	retrograde	4957 May 28 22:31	28° \approx 24'40	
direct	4949 Oct 18 05:27	8° \approx 09'19		opposition	4957 Aug 16 16:25	27° \approx 01'45	0°27'55
				min. Earth dist.	4957 Aug 16 20:21	27° \approx 01'29	29.19591 AU
conjunction	4950 Jan 30 15:59	10° \approx 38'41	0°48'14	direct	4957 Nov 05 02:26	25° \approx 37'58	
minimum elong	4950 Jan 30 15:59	10° \approx 38'41	0°48'14				
max. Earth dist.	4950 Jan 30 05:17	10° \approx 37'41	31.25784 AU	conjunction	4958 Feb 16 19:38	28° \approx 06'50	0°24'34
retrograde	4950 May 13 17:12	13° \approx 06'53		minimum elong	4958 Feb 16 19:38	28° \approx 06'50	0°24'33
opposition	4950 Aug 01 00:17	11° \approx 44'29	0°50'04	max. Earth dist.	4958 Feb 16 16:32	28° \approx 06'32	31.19280 AU
min. Earth dist.	4950 Aug 01 09:42	11° \approx 43'51	29.25445 AU		4958 Apr 14 10:08	0° H	
direct	4950 Oct 20 15:26	10° \approx 20'35		retrograde	4958 May 31 09:13	0° H 35'57	
					4958 Jul 19 11:55	30° $\text{R}\approx$	
conjunction	4951 Feb 02 01:39	12° \approx 49'54	0°45'29	opposition	4958 Aug 19 05:08	29° \approx 13'02	0°24'32
minimum elong	4951 Feb 02 01:39	12° \approx 49'54	0°45'30	min. Earth dist.	4958 Aug 19 08:03	29° \approx 12'50	29.18984 AU
max. Earth dist.	4951 Feb 01 16:23	12° \approx 49'02	31.25012 AU	direct	4958 Nov 07 13:32	27° \approx 49'19	
	4951 Apr 13 02:52	15° \approx			4959 Feb 11 04:36	0° H	
retrograde	4951 May 16 04:04	15° \approx 18'11					
	4951 Jun 19 04:01	15° $\text{R}\approx$		conjunction	4959 Feb 19 05:01	0° H 18'10	0°21'23
opposition	4951 Aug 03 12:51	13° \approx 55'43	0°47'05	minimum elong	4959 Feb 19 05:01	0° H 18'10	0°21'24
min. Earth dist.	4951 Aug 03 22:16	13° \approx 55'05	29.24602 AU	max. Earth dist.	4959 Feb 19 01:43	0° H 17'51	31.18685 AU
direct	4951 Oct 23 04:45	12° \approx 31'49		retrograde	4959 Jun 02 22:15	2° H 47'29	
	4952 Feb 03 23:59	15° \approx		opposition	4959 Aug 21 17:58	1° H 24'32	0°21'07
				min. Earth dist.	4959 Aug 21 19:57	1° H 24'24	29.18388 AU
conjunction	4952 Feb 04 11:09	15° \approx 01'03	0°42'39	direct	4959 Nov 09 23:02	0° H 00'53	
minimum elong	4952 Feb 04 11:09	15° \approx 01'03	0°42'39				
max. Earth dist.	4952 Feb 04 01:31	15° \approx 00'09	31.24132 AU	conjunction	4960 Feb 21 14:43	2° H 29'44	0°18'11
retrograde	4952 May 17 17:08	17° \approx 29'25		minimum elong	4960 Feb 21 14:43	2° H 29'44	0°18'10
opposition	4952 Aug 05 01:25	16° \approx 06'51	0°44'02	max. Earth dist.	4960 Feb 21 13:08	2° H 29'35	31.18069 AU
min. Earth dist.	4952 Aug 05 09:25	16° \approx 06'19	29.23679 AU	retrograde	4960 Jun 04 10:04	4° H 59'14	
	4952 Sep 21 14:05	15° $\text{R}\approx$		opposition	4960 Aug 23 06:59	3° H 36'16	0°17'40
direct	4952 Oct 24 16:55	14° \approx 42'57		min. Earth dist.	4960 Aug 23 08:44	3° H 36'09	29.17742 AU
	4952 Nov 26 00:31	15° \approx		direct	4960 Nov 11 11:15	2° H 12'42	
conjunction	4953 Feb 05 20:35	17° \approx 12'05	0°39'46	conjunction	4961 Feb 23 00:17	4° H 41'31	0°14'56
minimum elong	4953 Feb 05 20:35	17° \approx 12'06	0°39'47	minimum elong	4961 Feb 23 00:17	4° H 41'31	0°14'57

behind sun begin	4961 Feb 22 21:41	4° ✕ 41'17		direct	4967 Nov 27 22:21	17° ✕ 37'49	
behind sun end	4961 Feb 23 02:53	4° ✕ 41'46					
max. Earth dist.	4961 Feb 22 22:30	4° ✕ 41'22	31.17392 AU	conjunction	4968 Mar 09 20:59	20° ✕ 06'20	0°-8'-10
retrograde	4961 Jun 07 00:13	7° ✕ 11'12		minimum elong	4968 Mar 09 21:00	20° ✕ 06'20	0°08'12
opposition	4961 Aug 25 19:55	5° ✕ 48'12	0°14'11	behind sun begin	4968 Mar 09 15:18	20° ✕ 05'49	
min. Earth dist.	4961 Aug 25 20:20	5° ✕ 48'11	29.17013 AU	behind sun end	4968 Mar 10 02:41	20° ✕ 06'51	
direct	4961 Nov 13 22:34	4° ✕ 24'41		max. Earth dist.	4968 Mar 10 00:02	20° ✕ 06'36	31.09942 AU
				retrograde	4968 Jun 22 08:56	22° ✕ 37'02	
conjunction	4962 Feb 25 10:10	6° ✕ 53'31	0°11'41	opposition	4968 Sep 10 15:14	21° ✕ 13'26	0°-10'-27
minimum elong	4962 Feb 25 10:10	6° ✕ 53'31	0°11'40	min. Earth dist.	4968 Sep 10 10:47	21° ✕ 13'44	29.09440 AU
behind sun begin	4962 Feb 25 05:33	6° ✕ 53'06		direct	4968 Nov 29 08:21	19° ✕ 49'58	
behind sun end	4962 Feb 25 14:46	6° ✕ 53'56					
max. Earth dist.	4962 Feb 25 09:24	6° ✕ 53'27	31.16593 AU	conjunction	4969 Mar 12 06:53	22° ✕ 18'27	0°-11'-27
retrograde	4962 Jun 09 11:28	9° ✕ 23'22		minimum elong	4969 Mar 12 06:53	22° ✕ 18'27	0°11'27
opposition	4962 Aug 28 08:56	8° ✕ 00'19	0°10'41	behind sun begin	4969 Mar 12 02:11	22° ✕ 18'01	
min. Earth dist.	4962 Aug 28 09:52	8° ✕ 00'16	29.16150 AU	behind sun end	4969 Mar 12 11:35	22° ✕ 18'52	
direct	4962 Nov 16 09:55	6° ✕ 36'51		max. Earth dist.	4969 Mar 12 11:52	22° ✕ 18'54	31.08948 AU
				retrograde	4969 Jun 24 20:07	24° ✕ 49'18	
conjunction	4963 Feb 27 20:02	9° ✕ 05'39	0°08'24	opposition	4969 Sep 13 04:17	23° ✕ 25'38	0°-13'-57
minimum elong	4963 Feb 27 20:03	9° ✕ 05'39	0°08'25	min. Earth dist.	4969 Sep 12 23:17	23° ✕ 25'59	29.08490 AU
behind sun begin	4963 Feb 27 14:24	9° ✕ 05'09		direct	4969 Dec 01 19:57	22° ✕ 02'13	
behind sun end	4963 Feb 28 01:41	9° ✕ 06'10					
max. Earth dist.	4963 Feb 27 19:37	9° ✕ 05'37	31.15669 AU	conjunction	4970 Mar 14 16:46	24° ✕ 30'40	0°-14'-43
retrograde	4963 Jun 11 23:55	11° ✕ 35'39		minimum elong	4970 Mar 14 16:46	24° ✕ 30'40	0°14'44
opposition	4963 Aug 30 21:59	10° ✕ 12'33	0°07'10	behind sun begin	4970 Mar 14 13:59	24° ✕ 30'25	
min. Earth dist.	4963 Aug 30 21:22	10° ✕ 12'35	29.15149 AU	behind sun end	4970 Mar 14 19:33	24° ✕ 30'55	
direct	4963 Nov 18 23:17	8° ✕ 49'06		max. Earth dist.	4970 Mar 14 21:53	24° ✕ 31'08	31.08049 AU
				retrograde	4970 Jun 27 09:53	27° ✕ 01'41	
conjunction	4964 Mar 01 05:49	11° ✕ 17'51	0°05'08	opposition	4970 Sep 15 17:10	25° ✕ 37'58	0°-17'-27
minimum elong	4964 Mar 01 05:48	11° ✕ 17'51	0°05'08	min. Earth dist.	4970 Sep 15 10:30	25° ✕ 38'25	29.07628 AU
behind sun begin	4964 Feb 29 23:35	11° ✕ 17'18		direct	4970 Dec 04 06:11	24° ✕ 14'34	
behind sun end	4964 Mar 01 12:01	11° ✕ 18'25					
max. Earth dist.	4964 Mar 01 05:42	11° ✕ 17'51	31.14598 AU	conjunction	4971 Mar 17 02:48	26° ✕ 43'02	0°-17'-57
retrograde	4964 Jun 13 12:14	13° ✕ 48'00		minimum elong	4971 Mar 17 02:47	26° ✕ 43'02	0°17'58
opposition	4964 Sep 01 11:13	12° ✕ 24'48	0°03'38	max. Earth dist.	4971 Mar 17 09:17	26° ✕ 43'38	31.07208 AU
min. Earth dist.	4964 Sep 01 10:59	12° ✕ 24'49	29.14025 AU	retrograde	4971 Jun 29 21:50	29° ✕ 14'13	
direct	4964 Nov 20 11:12	11° ✕ 01'21		opposition	4971 Sep 18 06:24	27° ✕ 50'27	0°-20'-55
				min. Earth dist.	4971 Sep 17 23:52	27° ✕ 50'54	29.06810 AU
conjunction	4965 Mar 03 15:42	13° ✕ 30'03	0°01'49	direct	4971 Dec 06 17:02	26° ✕ 27'07	
minimum elong	4965 Mar 03 15:43	13° ✕ 30'03	0°01'50				
behind sun begin	4965 Mar 03 09:19	13° ✕ 29'28		conjunction	4972 Mar 18 12:48	28° ✕ 55'33	0°-21'-11
behind sun end	4965 Mar 03 22:06	13° ✕ 30'38		minimum elong	4972 Mar 18 12:48	28° ✕ 55'33	0°21'13
max. Earth dist.	4965 Mar 03 16:48	13° ✕ 30'05	31.13435 AU	max. Earth dist.	4972 Mar 18 20:06	28° ✕ 56'14	31.06409 AU
retrograde	4965 Jun 15 22:41	16° ✕ 00'19			4972 Apr 16 17:51	0° ∇	
opposition	4965 Sep 04 00:05	14° ✕ 37'01	0°00'07	retrograde	4972 Jul 01 11:44	1° ∇ 26'55	
min. Earth dist.	4965 Sep 03 22:19	14° ✕ 37'08	29.12824 AU	opposition	4972 Sep 19 19:31	0° ∇ 03'07	0°-24'-21
desc. node	4965 Sep 15 11:37	14° ✕ 18'28		min. Earth dist.	4972 Sep 19 11:16	0° ∇ 03'40	29.06005 AU
direct	4965 Nov 23 00:07	13° ✕ 13'33			4972 Sep 21 17:16	30° ℞ ✕	
				direct	4972 Dec 08 06:04	28° ✕ 39'49	
conjunction	4966 Mar 06 01:28	15° ✕ 42'11	0°-1'-35		4973 Feb 17 20:07	0° ∇	
minimum elong	4966 Mar 06 01:27	15° ✕ 42'11	0°01'36				
behind sun begin	4966 Mar 05 19:03	15° ✕ 41'36		conjunction	4973 Mar 20 23:01	1° ∇ 08'16	0°-24'-23
behind sun end	4966 Mar 06 07:51	15° ✕ 42'45		minimum elong	4973 Mar 20 23:01	1° ∇ 08'16	0°24'23
max. Earth dist.	4966 Mar 06 02:29	15° ✕ 42'13	31.12221 AU	max. Earth dist.	4973 Mar 21 06:39	1° ∇ 08'59	31.05580 AU
retrograde	4966 Jun 18 09:44	18° ✕ 12'35		retrograde	4973 Jul 04 01:11	3° ∇ 39'48	
opposition	4966 Sep 06 13:09	16° ✕ 49'10	0°-3'-24	opposition	4973 Sep 22 08:39	2° ∇ 15'57	0°-27'-45
min. Earth dist.	4966 Sep 06 11:08	16° ✕ 49'18	29.11626 AU	min. Earth dist.	4973 Sep 22 00:54	2° ∇ 16'29	29.05162 AU
direct	4966 Nov 25 10:35	15° ✕ 25'42		direct	4973 Dec 10 17:25	0° ∇ 52'41	
conjunction	4967 Mar 08 11:15	17° ✕ 54'16	0°-4'-54	conjunction	4974 Mar 23 09:27	3° ∇ 21'08	0°-27'-33
minimum elong	4967 Mar 08 11:14	17° ✕ 54'16	0°04'54	minimum elong	4974 Mar 23 09:27	3° ∇ 21'08	0°27'35
behind sun begin	4967 Mar 08 05:00	17° ✕ 53'42		max. Earth dist.	4974 Mar 23 18:11	3° ∇ 21'58	31.04699 AU
behind sun end	4967 Mar 08 17:29	17° ✕ 54'50		retrograde	4974 Jul 06 12:55	5° ∇ 52'50	
max. Earth dist.	4967 Mar 08 14:18	17° ✕ 54'31	31.11040 AU	opposition	4974 Sep 24 21:51	4° ∇ 28'57	0°-31'-7
retrograde	4967 Jun 20 19:54	20° ✕ 24'48		min. Earth dist.	4974 Sep 24 12:42	4° ∇ 29'34	29.04227 AU
opposition	4967 Sep 09 02:12	19° ✕ 01'17	0°-6'-56	direct	4974 Dec 13 06:20	3° ∇ 05'43	
min. Earth dist.	4967 Sep 08 22:56	19° ✕ 01'31	29.10476 AU				

conjunction	4975 Mar 25 19:44	5°Υ34'09	0°-30'-40	retrograde	4983 Jul 27 06:40	25°Υ52'14	
minimum elong	4975 Mar 25 19:44	5°Υ34'09	0°30'41	opposition	4983 Oct 15 20:07	24°Υ27'39	0°-58'-48
max. Earth dist.	4975 Mar 26 04:03	5°Υ34'56	31.03705 AU	min. Earth dist.	4983 Oct 15 04:41	24°Υ28'43	28.94579 AU
retrograde	4975 Jul 09 01:28	8°Υ06'01		direct	4984 Jan 02 14:04	23°Υ04'26	
opposition	4975 Sep 27 11:15	6°Υ42'03	0°-34'-27				
min. Earth dist.	4975 Sep 27 02:15	6°Υ42'40	29.03183 AU	conjunction	4984 Apr 13 19:19	25°Υ32'48	0°-56'-15
direct	4975 Dec 15 17:22	5°Υ18'50		minimum elong	4984 Apr 13 19:19	25°Υ32'48	0°56'17
				max. Earth dist.	4984 Apr 14 10:15	25°Υ34'13	30.94200 AU
conjunction	4976 Mar 27 06:23	7°Υ47'15	0°-33'-45	retrograde	4984 Jul 28 20:36	28°Υ05'58	
minimum elong	4976 Mar 27 06:23	7°Υ47'15	0°33'47	opposition	4984 Oct 17 09:12	26°Υ41'22	-1°-1'-30
max. Earth dist.	4976 Mar 27 16:11	7°Υ48'11	31.02596 AU	min. Earth dist.	4984 Oct 16 17:50	26°Υ42'25	28.93916 AU
retrograde	4976 Jul 10 12:40	10°Υ19'16		direct	4985 Jan 04 01:14	25°Υ18'11	
opposition	4976 Sep 29 00:29	8°Υ55'12	0°-37'-43				
min. Earth dist.	4976 Sep 28 14:46	8°Υ55'52	29.02013 AU	conjunction	4985 Apr 16 06:27	27°Υ46'35	0°-58'-45
direct	4976 Dec 17 05:54	7°Υ31'59		minimum elong	4985 Apr 16 06:27	27°Υ46'35	0°58'46
				max. Earth dist.	4985 Apr 16 23:03	27°Υ48'10	30.93550 AU
conjunction	4977 Mar 29 16:51	10°Υ00'22	0°-36'-47		4985 Jun 26 07:36	0°8	
minimum elong	4977 Mar 29 16:51	10°Υ00'22	0°36'48	retrograde	4985 Jul 31 09:06	0°819'54	
max. Earth dist.	4977 Mar 30 02:06	10°Υ01'14	31.01383 AU		4985 Sep 05 04:50	30°RΥ	
retrograde	4977 Jul 13 01:48	12°Υ32'31		opposition	4985 Oct 19 22:14	28°Υ55'17	-1°-4'-7
opposition	4977 Oct 01 13:43	11°Υ08'21	0°-40'-56	min. Earth dist.	4985 Oct 19 06:06	28°Υ56'23	28.93270 AU
min. Earth dist.	4977 Oct 01 03:27	11°Υ09'03	29.00766 AU	direct	4986 Jan 06 14:05	27°Υ32'09	
direct	4977 Dec 19 16:35	9°Υ45'06					
				conjunction	4986 Apr 18 17:30	0°800'35	-1°-1'-8
conjunction	4978 Apr 01 03:26	12°Υ13'27	0°-39'-46	minimum elong	4986 Apr 18 17:30	0°800'35	1°01'11
minimum elong	4978 Apr 01 03:26	12°Υ13'27	0°39'48		4986 Apr 18 11:24	0°8	
max. Earth dist.	4978 Apr 01 14:13	12°Υ14'28	31.00104 AU	max. Earth dist.	4986 Apr 19 09:32	0°802'06	30.92898 AU
retrograde	4978 Jul 15 12:32	14°Υ45'43		retrograde	4986 Aug 02 22:21	2°834'03	
opposition	4978 Oct 04 02:50	13°Υ21'28	0°-44'-5	opposition	4986 Oct 22 11:20	1°809'24	-1°-6'-38
min. Earth dist.	4978 Oct 03 16:17	13°Υ22'11	28.99487 AU	min. Earth dist.	4986 Oct 21 18:53	1°810'32	28.92609 AU
direct	4978 Dec 22 04:24	11°Υ58'11			4986 Dec 11 02:09	30°RΥ	
				direct	4987 Jan 09 00:40	29°Υ46'18	
conjunction	4979 Apr 03 13:55	14°Υ26'30	0°-42'-41		4987 Feb 06 06:38	0°8	
minimum elong	4979 Apr 03 13:55	14°Υ26'30	0°42'42				
max. Earth dist.	4979 Apr 04 00:48	14°Υ27'32	30.98853 AU	conjunction	4987 Apr 21 04:56	2°814'45	-1°-3'-27
retrograde	4979 Jul 18 02:10	16°Υ58'54		minimum elong	4987 Apr 21 04:56	2°814'45	1°03'28
opposition	4979 Oct 06 15:57	15°Υ34'33	0°-47'-10	max. Earth dist.	4987 Apr 21 22:11	2°816'24	30.92196 AU
min. Earth dist.	4979 Oct 06 03:49	15°Υ35'22	28.98277 AU	retrograde	4987 Aug 05 09:18	4°848'22	
direct	4979 Dec 24 14:42	14°Υ11'15		min. Earth dist.	4987 Oct 24 08:09	3°824'49	28.91870 AU
				opposition	4987 Oct 25 00:31	3°823'41	-1°-9'-3
conjunction	4980 Apr 05 00:26	16°Υ39'33	0°-45'-32	direct	4988 Jan 11 12:26	2°800'35	
minimum elong	4980 Apr 05 00:26	16°Υ39'33	0°45'34				
max. Earth dist.	4980 Apr 05 12:38	16°Υ40'42	30.97676 AU	conjunction	4988 Apr 22 16:19	4°829'03	-1°-5'-40
retrograde	4980 Jul 19 14:09	19°Υ12'06		minimum elong	4988 Apr 22 16:19	4°829'03	1°05'42
opposition	4980 Oct 08 05:07	17°Υ47'39	0°-50'-11	max. Earth dist.	4988 Apr 23 09:03	4°830'39	30.91415 AU
min. Earth dist.	4980 Oct 07 17:04	17°Υ48'29	28.97165 AU	retrograde	4988 Aug 06 23:36	7°802'46	
direct	4980 Dec 26 01:36	16°Υ24'21		opposition	4988 Oct 26 13:38	5°838'02	-1°-11'-22
				min. Earth dist.	4988 Oct 25 20:23	5°839'13	28.91037 AU
conjunction	4981 Apr 07 11:07	18°Υ52'39	0°-48'-19	direct	4989 Jan 12 22:57	4°814'55	
minimum elong	4981 Apr 07 11:06	18°Υ52'39	0°48'20				
max. Earth dist.	4981 Apr 08 00:12	18°Υ53'53	30.96630 AU	conjunction	4989 Apr 25 03:57	6°843'23	-1°-7'-47
retrograde	4981 Jul 22 04:26	21°Υ25'20		minimum elong	4989 Apr 25 03:57	6°843'23	1°07'48
opposition	4981 Oct 10 17:56	20°Υ00'50	0°-53'-8	max. Earth dist.	4989 Apr 25 21:11	6°845'01	30.90520 AU
min. Earth dist.	4981 Oct 10 04:03	20°Υ01'47	28.96183 AU	retrograde	4989 Aug 09 11:10	9°817'11	
direct	4981 Dec 28 14:23	18°Υ37'32		min. Earth dist.	4989 Oct 28 10:09	7°853'31	28.90103 AU
				opposition	4989 Oct 29 02:39	7°852'22	-1°-13'-35
conjunction	4982 Apr 09 21:47	21°Υ05'52	0°-51'-2	direct	4990 Jan 15 10:18	6°829'13	
minimum elong	4982 Apr 09 21:47	21°Υ05'52	0°51'04				
max. Earth dist.	4982 Apr 10 11:21	21°Υ07'09	30.95704 AU	conjunction	4990 Apr 27 15:32	8°857'40	-1°-9'-48
retrograde	4982 Jul 24 18:17	23°Υ38'42		minimum elong	4990 Apr 27 15:32	8°857'40	1°09'50
opposition	4982 Oct 13 07:05	22°Υ14'09	0°-56'00	max. Earth dist.	4990 Apr 28 09:08	8°859'20	30.89566 AU
min. Earth dist.	4982 Oct 12 17:23	22°Υ15'06	28.95329 AU	retrograde	4990 Aug 12 01:03	11°831'32	
direct	4982 Dec 31 01:25	20°Υ50'54		opposition	4990 Oct 31 15:36	10°806'38	-1°-15'-41
				min. Earth dist.	4990 Oct 30 21:49	10°807'51	28.89133 AU
conjunction	4983 Apr 12 08:30	23°Υ19'14	0°-53'-41	direct	4991 Jan 17 22:50	8°843'25	
minimum elong	4983 Apr 12 08:30	23°Υ19'14	0°53'42				
max. Earth dist.	4983 Apr 12 23:36	23°Υ20'40	30.94908 AU	conjunction	4991 Apr 30 02:56	11°811'51	-1°-11'-43

minimum elong	4991 Apr 30 02:56	11°♄11'51	1°11'44	minimum elong	4999 May 18 02:20	29°♄06'59	1°22'55
max. Earth dist.	4991 Apr 30 20:40	11°♄13'32	30.88591 AU	max. Earth dist.	4999 May 18 23:49	29°♄09'01	30.84306 AU
retrograde	4991 Aug 14 14:04	13°♄45'48			4999 Jun 10 20:41	0°♄	
min. Earth dist.	4991 Nov 02 11:30	12°♄21'59	28.88190 AU	retrograde	4999 Sep 02 00:39	1°♄41'39	
opposition	4991 Nov 03 04:42	12°♄20'48	-1°-17'-40	opposition	4999 Nov 21 10:49	0°♄16'32	-1°-29'-7
direct	4992 Jan 20 09:38	10°♄57'33		min. Earth dist.	4999 Nov 20 14:01	0°♄17'59	28.84216 AU
					4999 Dec 01 10:31	30°♄	
conjunction	4992 May 01 14:39	13°♄25'58	-1°-13'-31	direct	5000 Feb 07 07:11	28°♄53'21	
minimum elong	4992 May 01 14:39	13°♄25'58	1°13'33		5000 Apr 12 10:32	0°♄	
max. Earth dist.	4992 May 02 09:36	13°♄27'46	30.87683 AU				
	4992 Jun 15 00:01	15°♄		conjunction	5000 May 20 14:54	1°♄22'10	-1°-23'-45
retrograde	4992 Aug 16 03:22	15°♄59'58		minimum elong	5000 May 20 14:54	1°♄22'10	1°23'47
	4992 Oct 20 09:05	15°♄		max. Earth dist.	5000 May 21 11:54	1°♄24'10	30.83932 AU
opposition	4992 Nov 04 17:24	14°♄34'54	-1°-19'-32	retrograde	5000 Sep 04 13:49	3°♄56'55	
min. Earth dist.	4992 Nov 03 22:46	14°♄36'12	28.87328 AU	opposition	5000 Nov 23 23:33	2°♄31'48	-1°-29'-58
direct	4993 Jan 21 22:46	13°♄11'37		min. Earth dist.	5000 Nov 23 04:02	2°♄33'10	28.83801 AU
	4993 Apr 16 07:22	15°♄		direct	5001 Feb 09 17:06	1°♄08'36	
conjunction	4993 May 04 02:16	15°♄40'03	-1°-15'-12	conjunction	5001 May 23 03:40	3°♄37'28	-1°-24'-28
minimum elong	4993 May 04 02:16	15°♄40'03	1°15'14	minimum elong	5001 May 23 03:40	3°♄37'28	1°24'30
max. Earth dist.	4993 May 04 20:49	15°♄41'48	30.86871 AU	max. Earth dist.	5001 May 24 01:02	3°♄39'30	30.83465 AU
retrograde	4993 Aug 18 17:51	18°♄14'07		retrograde	5001 Sep 07 03:54	6°♄12'15	
min. Earth dist.	4993 Nov 06 11:48	16°♄50'17	28.86589 AU	opposition	5001 Nov 26 12:11	4°♄47'07	-1°-30'-40
opposition	4993 Nov 07 06:17	16°♄49'00	-1°-21'-17	min. Earth dist.	5001 Nov 25 15:55	4°♄48'32	28.83274 AU
direct	4994 Jan 24 10:20	15°♄25'41		direct	5002 Feb 12 06:32	3°♄23'53	
conjunction	4994 May 06 14:01	17°♄54'09	-1°-16'-47	conjunction	5002 May 25 16:10	5°♄52'47	-1°-25'-4
minimum elong	4994 May 06 14:01	17°♄54'09	1°16'49	minimum elong	5002 May 25 16:10	5°♄52'47	1°25'06
max. Earth dist.	4994 May 07 10:15	17°♄56'04	30.86188 AU	max. Earth dist.	5002 May 26 12:27	5°♄54'42	30.82893 AU
retrograde	4994 Aug 21 06:30	20°♄28'18		retrograde	5002 Sep 09 18:46	8°♄27'35	
opposition	4994 Nov 09 19:02	19°♄03'09	-1°-22'-55	min. Earth dist.	5002 Nov 28 05:28	7°♄03'45	28.82676 AU
min. Earth dist.	4994 Nov 08 23:36	19°♄04'30	28.85971 AU	opposition	5002 Nov 29 00:54	7°♄02'24	-1°-31'-14
direct	4995 Jan 26 23:33	17°♄39'51		direct	5003 Feb 14 18:33	5°♄39'07	
conjunction	4995 May 09 01:46	20°♄08'20	-1°-18'-15	conjunction	5003 May 28 04:56	8°♄08'02	-1°-25'-32
minimum elong	4995 May 09 01:46	20°♄08'20	1°18'17	minimum elong	5003 May 28 04:56	8°♄08'02	1°25'34
max. Earth dist.	4995 May 09 21:32	20°♄10'13	30.85644 AU	max. Earth dist.	5003 May 29 02:18	8°♄10'03	30.82280 AU
retrograde	4995 Aug 23 20:18	22°♄42'36		retrograde	5003 Sep 12 07:33	10°♄42'50	
opposition	4995 Nov 12 07:51	21°♄17'25	-1°-24'-25	opposition	5003 Dec 01 13:19	9°♄17'36	-1°-31'-40
min. Earth dist.	4995 Nov 11 12:01	21°♄18'48	28.85500 AU	min. Earth dist.	5003 Nov 30 17:30	9°♄18'59	28.82057 AU
direct	4996 Jan 29 10:10	19°♄54'08		direct	5004 Feb 17 08:12	7°♄54'14	
conjunction	4996 May 10 13:44	22°♄22'40	-1°-19'-36	conjunction	5004 May 29 17:35	10°♄23'11	-1°-25'-52
minimum elong	4996 May 10 13:44	22°♄22'40	1°19'38	minimum elong	5004 May 29 17:35	10°♄23'11	1°25'54
max. Earth dist.	4996 May 11 10:56	22°♄24'41	30.85221 AU	max. Earth dist.	5004 May 30 13:58	10°♄25'06	30.81680 AU
retrograde	4996 Aug 25 08:01	24°♄57'02		retrograde	5004 Sep 13 21:45	12°♄57'59	
opposition	4996 Nov 13 20:38	23°♄31'52	-1°-25'-48	min. Earth dist.	5004 Dec 02 06:05	11°♄34'03	28.81489 AU
min. Earth dist.	4996 Nov 13 00:44	23°♄33'15	28.85124 AU	opposition	5004 Dec 03 01:46	11°♄32'41	-1°-31'-57
direct	4997 Jan 30 22:09	22°♄08'37		direct	5005 Feb 18 19:31	10°♄09'16	
conjunction	4997 May 13 01:48	24°♄37'12	-1°-20'-49	conjunction	5005 Jun 01 06:24	12°♄38'14	-1°-26'-4
minimum elong	4997 May 13 01:47	24°♄37'12	1°20'51	minimum elong	5005 Jun 01 06:24	12°♄38'14	1°26'06
max. Earth dist.	4997 May 13 22:34	24°♄39'11	30.84892 AU	max. Earth dist.	5005 Jun 02 03:53	12°♄40'16	30.81137 AU
retrograde	4997 Aug 27 22:50	27°♄11'40		retrograde	5005 Sep 16 10:15	15°♄13'01	
opposition	4997 Nov 16 09:13	25°♄46'32	-1°-27'-2	opposition	5005 Dec 05 14:00	13°♄47'41	-1°-32'-6
min. Earth dist.	4997 Nov 15 12:30	25°♄47'58	28.84826 AU	min. Earth dist.	5005 Dec 04 18:27	13°♄49'03	28.80996 AU
direct	4998 Feb 02 08:30	24°♄23'18		direct	5006 Feb 21 08:53	12°♄24'13	
conjunction	4998 May 15 14:01	26°♄51'59	-1°-21'-56	conjunction	5006 Jun 03 19:08	14°♄53'12	-1°-26'-9
minimum elong	4998 May 15 14:01	26°♄51'59	1°21'58	minimum elong	5006 Jun 03 19:09	14°♄53'12	1°26'11
max. Earth dist.	4998 May 16 11:26	26°♄54'00	30.84599 AU	max. Earth dist.	5006 Jun 04 15:58	14°♄55'10	30.80713 AU
retrograde	4998 Aug 30 10:29	29°♄26'33		retrograde	5006 Sep 19 00:40	17°♄27'59	
opposition	4998 Nov 18 22:04	28°♄01'26	-1°-28'-9	min. Earth dist.	5006 Dec 07 05:57	16°♄04'02	28.80639 AU
min. Earth dist.	4998 Nov 18 02:08	28°♄02'49	28.84539 AU	opposition	5006 Dec 08 02:16	16°♄02'37	-1°-32'-7
direct	4999 Feb 04 19:23	26°♄38'14		direct	5007 Feb 23 20:26	14°♄39'06	
conjunction	4999 May 18 02:20	29°♄06'59	-1°-22'-54	conjunction	5007 Jun 06 07:55	17°♄08'07	-1°-26'-6

minimum elong	5007 Jun 06 07:55	17°II08'07	1°26'07	minimum elong	5015 Jun 24 18:14	5°☾09'46	1°20'56
max. Earth dist.	5007 Jun 07 05:25	17°II10'09	30.80414 AU	max. Earth dist.	5015 Jun 25 13:02	5°☾11'32	30.80248 AU
retrograde	5007 Sep 21 11:31	19°II42'54		retrograde	5015 Oct 10 00:28	7°☾44'25	
opposition	5007 Dec 10 14:35	18°II17'32	-1°-31'-59	opposition	5015 Dec 28 15:00	6°☾19'10	-1°-25'-53
min. Earth dist.	5007 Dec 09 18:56	18°II18'55	28.80410 AU	min. Earth dist.	5015 Dec 27 21:11	6°☾20'25	28.80243 AU
direct	5008 Feb 26 07:47	16°II54'00		direct	5016 Mar 15 06:38	4°☾55'26	
conjunction	5008 Jun 07 20:54	19°II23'03	-1°-25'-54	conjunction	5016 Jun 26 07:52	7°☾24'59	-1°-19'-42
minimum elong	5008 Jun 07 20:55	19°II23'03	1°25'56	minimum elong	5016 Jun 26 07:52	7°☾24'59	1°19'44
max. Earth dist.	5008 Jun 08 18:26	19°II25'06	30.80264 AU	max. Earth dist.	5016 Jun 27 02:49	7°☾26'46	30.80089 AU
retrograde	5008 Sep 23 01:05	21°II57'50		retrograde	5016 Oct 11 11:50	9°☾59'33	
min. Earth dist.	5008 Dec 11 05:58	20°II33'55	28.80320 AU	min. Earth dist.	5016 Dec 29 10:03	8°☾35'29	28.80098 AU
opposition	5008 Dec 12 02:34	20°II32'28	-1°-31'-42	opposition	5016 Dec 30 02:41	8°☾34'18	-1°-24'-31
direct	5009 Feb 27 19:07	19°II08'55		direct	5017 Mar 17 18:30	7°☾10'30	
conjunction	5009 Jun 10 09:55	21°II38'03	-1°-25'-35	conjunction	5017 Jun 28 21:25	9°☾40'05	-1°-18'-22
minimum elong	5009 Jun 10 09:55	21°II38'03	1°25'37	minimum elong	5017 Jun 28 21:25	9°☾40'05	1°18'24
max. Earth dist.	5009 Jun 11 07:15	21°II40'03	30.80227 AU	max. Earth dist.	5017 Jun 29 15:52	9°☾41'49	30.79985 AU
retrograde	5009 Sep 25 13:35	24°II12'50		retrograde	5017 Oct 14 01:40	12°☾14'35	
opposition	5009 Dec 14 14:49	22°II47'30	-1°-31'-17	opposition	5018 Jan 01 14:16	10°☾49'20	-1°-23'-2
min. Earth dist.	5009 Dec 13 19:19	22°II48'52	28.80338 AU	min. Earth dist.	5017 Dec 31 20:58	10°☾50'33	28.80031 AU
direct	5010 Mar 02 04:37	21°II23'56		direct	5018 Mar 20 06:16	9°☾25'28	
conjunction	5010 Jun 12 22:58	23°II53'07	-1°-25'-7	conjunction	5018 Jul 01 10:46	11°☾55'05	-1°-16'-55
minimum elong	5010 Jun 12 22:58	23°II53'07	1°25'10	minimum elong	5018 Jul 01 10:46	11°☾55'05	1°16'56
max. Earth dist.	5010 Jun 13 20:53	23°II55'11	30.80292 AU	max. Earth dist.	5018 Jul 02 04:56	11°☾56'48	30.79964 AU
retrograde	5010 Sep 28 02:53	26°II27'55		retrograde	5018 Oct 16 13:14	14°☾29'31	
min. Earth dist.	5010 Dec 16 06:36	25°II04'03	28.80423 AU	min. Earth dist.	5019 Jan 03 09:52	13°☾05'25	28.80075 AU
opposition	5010 Dec 17 02:54	25°II02'37	-1°-30'-44	opposition	5019 Jan 04 01:58	13°☾04'17	-1°-21'-25
direct	5011 Mar 04 17:36	23°II39'04		direct	5019 Mar 22 15:57	11°☾40'22	
conjunction	5011 Jun 15 12:11	26°II08'20	-1°-24'-32	conjunction	5019 Jul 04 00:25	14°☾10'02	-1°-15'-21
minimum elong	5011 Jun 15 12:11	26°II08'20	1°24'34	minimum elong	5019 Jul 04 00:25	14°☾10'02	1°15'23
max. Earth dist.	5011 Jun 16 08:57	26°II10'17	30.80390 AU	max. Earth dist.	5019 Jul 04 18:53	14°☾11'46	30.80085 AU
retrograde	5011 Sep 30 16:54	28°II43'08		retrograde	5019 Oct 19 01:15	16°☾44'23	
opposition	5011 Dec 19 15:02	27°II17'52	-1°-30'-2	opposition	5020 Jan 06 13:18	15°☾19'10	-1°-19'-41
min. Earth dist.	5011 Dec 18 19:53	27°II19'13	28.80526 AU	min. Earth dist.	5020 Jan 05 20:27	15°☾20'22	28.80262 AU
direct	5012 Mar 06 04:19	25°II54'18		direct	5020 Mar 24 04:51	13°☾55'13	
conjunction	5012 Jun 17 01:44	28°II23'39	-1°-23'-49	conjunction	5020 Jul 05 13:59	16°☾24'57	-1°-13'-40
minimum elong	5012 Jun 17 01:44	28°II23'39	1°23'51	minimum elong	5020 Jul 05 13:59	16°☾24'57	1°13'42
max. Earth dist.	5012 Jun 17 23:05	28°II25'40	30.80471 AU	max. Earth dist.	5020 Jul 06 07:22	16°☾26'35	30.80347 AU
retrograde	5012 Aug 01 22:51	0°☾		retrograde	5020 Oct 20 13:50	18°☾59'15	
min. Earth dist.	5012 Oct 02 06:10	0°☾58'27		min. Earth dist.	5021 Jan 07 08:55	17°☾35'11	28.80606 AU
opposition	5012 Dec 04 22:45	30°R II		opposition	5021 Jan 08 00:50	17°☾34'04	-1°-17'-49
direct	5012 Dec 20 07:57	29°II34'34	28.80564 AU	direct	5021 Mar 26 14:48	16°☾10'05	
conjunction	5012 Dec 21 03:05	29°II33'13	-1°-29'-11	conjunction	5021 Jul 08 03:39	18°☾39'54	-1°-11'-52
direct	5013 Mar 08 17:21	28°II09'38		minimum elong	5021 Jul 08 03:39	18°☾39'54	1°11'54
conjunction	5013 Jun 02 04:45	0°☾		max. Earth dist.	5021 Jul 08 21:49	18°☾41'36	30.80767 AU
minimum elong	5013 Jun 19 15:10	0°☾39'03	-1°-22'-58	retrograde	5021 Oct 23 02:22	21°☾14'07	
max. Earth dist.	5013 Jun 19 15:10	0°☾39'03	1°23'00	opposition	5022 Jan 10 12:11	19°☾49'00	-1°-15'-50
retrograde	5013 Jun 20 10:51	0°☾40'54	30.80470 AU	min. Earth dist.	5022 Jan 09 19:59	19°☾50'09	28.81085 AU
opposition	5013 Oct 04 20:57	3°☾13'49		direct	5022 Mar 29 02:50	18°☾25'00	
min. Earth dist.	5013 Dec 23 15:08	1°☾48'36	-1°-28'-13	conjunction	5022 Jul 10 17:15	20°☾54'54	-1°-9'-58
direct	5013 Dec 22 20:44	1°☾49'53	28.80523 AU	minimum elong	5022 Jul 10 17:15	20°☾54'54	1°09'59
conjunction	5014 Mar 11 04:47	0°☾24'58		max. Earth dist.	5022 Jul 11 10:03	20°☾56'29	30.81321 AU
minimum elong	5014 Jun 22 04:48	2°☾54'26	-1°-22'00	retrograde	5022 Oct 25 16:41	23°☾29'04	
max. Earth dist.	5014 Jun 22 04:48	2°☾54'26	1°22'02	opposition	5023 Jan 12 23:35	22°☾04'01	-1°-13'-44
retrograde	5014 Jun 23 00:58	2°☾56'20	30.80384 AU	min. Earth dist.	5023 Jan 12 07:59	22°☾05'07	28.81694 AU
min. Earth dist.	5014 Oct 07 10:12	5°☾29'09		direct	5023 Mar 31 13:53	20°☾40'02	
opposition	5014 Dec 25 09:25	4°☾05'10	28.80396 AU	conjunction	5023 Jul 13 07:07	23°☾10'01	-1°-7'-57
direct	5014 Dec 26 03:09	4°☾03'56	-1°-27'-7	minimum elong	5023 Jul 13 07:07	23°☾10'01	1°07'58
conjunction	5015 Mar 13 18:26	2°☾40'15		max. Earth dist.	5023 Jul 14 00:34	23°☾11'39	30.81964 AU
retrograde	5015 Jun 24 18:13	5°☾09'46	-1°-20'-55	retrograde	5023 Oct 28 05:53	25°☾44'07	

opposition	5024 Jan 15 10:58	24° $\overline{5}$ 19'09	-1°-11'-31	max. Earth dist.	5031 Aug 01 09:12	11° Ω 10'42	30.85980 AU
min. Earth dist.	5024 Jan 14 20:10	24° $\overline{5}$ 20'11	28.82347 AU	retrograde	5031 Nov 15 10:20	13° Ω 42'50	
direct	5024 Apr 02 03:24	22° $\overline{5}$ 55'10		opposition	5032 Feb 02 04:08	12° Ω 18'06	0°-50'-15
				min. Earth dist.	5032 Feb 01 18:36	12° Ω 18'47	28.86312 AU
conjunction	5024 Jul 14 21:04	25° $\overline{5}$ 25'14	-1°-5'-49	direct	5032 Apr 20 01:37	10° Ω 53'42	
minimum elong	5024 Jul 14 21:04	25° $\overline{5}$ 25'14	1°05'50				
max. Earth dist.	5024 Jul 15 12:48	25° $\overline{5}$ 26'42	30.82627 AU	conjunction	5032 Aug 02 12:59	13° Ω 24'04	0°-45'-36
retrograde	5024 Oct 29 20:04	27° $\overline{5}$ 59'16		minimum elong	5032 Aug 02 12:59	13° Ω 24'04	0°45'37
opposition	5025 Jan 16 22:12	26° $\overline{5}$ 34'21	-1°-9'-11	max. Earth dist.	5032 Aug 02 23:49	13° Ω 25'05	30.86616 AU
min. Earth dist.	5025 Jan 16 07:38	26° $\overline{5}$ 35'23	28.82994 AU		5032 Sep 17 16:30	15° Ω	
direct	5025 Apr 04 15:15	25° $\overline{5}$ 10'21		retrograde	5032 Nov 16 21:52	15° Ω 57'02	
					5033 Jan 18 00:58	15° \overline{R} Ω	
conjunction	5025 Jul 17 11:09	27° $\overline{5}$ 40'30	-1°-3'-36	opposition	5033 Feb 03 14:54	14° Ω 32'21	0°-47'-13
minimum elong	5025 Jul 17 11:10	27° $\overline{5}$ 40'30	1°03'37	min. Earth dist.	5033 Feb 03 06:00	14° Ω 32'59	28.87007 AU
max. Earth dist.	5025 Jul 18 02:41	27° $\overline{5}$ 41'58	30.83237 AU	direct	5033 Apr 22 14:30	13° Ω 07'55	
	5025 Oct 02 18:08	0° Ω			5033 Jul 18 19:42	15° Ω	
retrograde	5025 Nov 01 08:46	0° Ω 14'26					
	5025 Dec 01 05:50	30° \overline{R} $\overline{5}$		conjunction	5033 Aug 05 02:47	15° Ω 38'21	0°-42'-44
opposition	5026 Jan 19 09:40	28° $\overline{5}$ 49'35	-1°-6'-45	minimum elong	5033 Aug 05 02:47	15° Ω 38'21	0°42'46
min. Earth dist.	5026 Jan 18 20:36	28° $\overline{5}$ 50'31	28.83564 AU	max. Earth dist.	5033 Aug 05 12:06	15° Ω 39'13	30.87393 AU
direct	5026 Apr 07 03:31	27° $\overline{5}$ 25'34		retrograde	5033 Nov 19 11:31	18° Ω 11'11	
				opposition	5034 Feb 06 01:43	16° Ω 46'35	0°-44'-6
conjunction	5026 Jul 20 01:05	29° $\overline{5}$ 55'45	-1°-1'-16	min. Earth dist.	5034 Feb 05 16:40	16° Ω 47'13	28.87855 AU
minimum elong	5026 Jul 20 01:05	29° $\overline{5}$ 55'46	1°01'18	direct	5034 Apr 25 01:55	15° Ω 22'08	
max. Earth dist.	5026 Jul 20 15:22	29° $\overline{5}$ 57'06	30.83777 AU				
	5026 Jul 21 22:21	0° Ω		conjunction	5034 Aug 07 16:36	17° Ω 52'38	0°-39'-47
retrograde	5026 Nov 03 23:24	2° Ω 29'34		minimum elong	5034 Aug 07 16:37	17° Ω 52'38	0°39'48
opposition	5027 Jan 21 20:57	1° Ω 04'45	-1°-4'-14	max. Earth dist.	5034 Aug 08 02:12	17° Ω 53'32	30.88302 AU
min. Earth dist.	5027 Jan 21 07:47	1° Ω 05'41	28.84052 AU	retrograde	5034 Nov 21 23:53	20° Ω 25'22	
	5027 Mar 06 10:03	30° \overline{R} $\overline{5}$		opposition	5035 Feb 08 12:35	19° Ω 00'51	0°-40'-55
direct	5027 Apr 09 16:23	29° $\overline{5}$ 40'41		min. Earth dist.	5035 Feb 08 04:48	19° Ω 01'24	28.88816 AU
	5027 May 13 08:35	0° Ω		direct	5035 Apr 27 14:08	17° Ω 36'26	
conjunction	5027 Jul 22 15:12	2° Ω 10'55	0°-58'-52	conjunction	5035 Aug 10 06:34	20° Ω 07'01	0°-36'-47
minimum elong	5027 Jul 22 15:12	2° Ω 10'55	0°58'54	minimum elong	5035 Aug 10 06:34	20° Ω 07'01	0°36'49
max. Earth dist.	5027 Jul 23 04:35	2° Ω 12'10	30.84223 AU	max. Earth dist.	5035 Aug 10 14:59	20° Ω 07'48	30.89322 AU
retrograde	5027 Nov 06 10:37	4° Ω 44'35		retrograde	5035 Nov 24 14:25	22° Ω 39'38	
opposition	5028 Jan 24 08:11	3° Ω 19'47	-1°-1'-36	opposition	5036 Feb 10 23:10	21° Ω 15'14	0°-37'-41
min. Earth dist.	5028 Jan 23 20:51	3° Ω 20'35	28.84468 AU	min. Earth dist.	5036 Feb 10 15:12	21° Ω 15'48	28.89857 AU
direct	5028 Apr 11 03:11	1° Ω 55'39		direct	5036 Apr 29 02:48	19° Ω 50'50	
conjunction	5028 Jul 24 05:20	4° Ω 25'54	0°-56'-22	conjunction	5036 Aug 11 20:40	22° Ω 21'31	0°-33'-44
minimum elong	5028 Jul 24 05:20	4° Ω 25'54	0°56'24	minimum elong	5036 Aug 11 20:40	22° Ω 21'31	0°33'45
max. Earth dist.	5028 Jul 24 18:15	4° Ω 27'06	30.84630 AU	max. Earth dist.	5036 Aug 12 04:23	22° Ω 22'13	30.90368 AU
retrograde	5028 Nov 07 22:34	6° Ω 59'25		retrograde	5036 Nov 26 01:54	24° Ω 54'02	
opposition	5029 Jan 25 19:14	5° Ω 34'38	0°-58'-53	opposition	5037 Feb 12 10:02	23° Ω 29'44	0°-34'-23
min. Earth dist.	5029 Jan 25 07:41	5° Ω 35'27	28.84853 AU	min. Earth dist.	5037 Feb 12 03:58	23° Ω 30'10	28.90899 AU
direct	5029 Apr 13 16:13	4° Ω 10'25		direct	5037 May 01 13:31	22° Ω 05'21	
conjunction	5029 Jul 26 19:09	6° Ω 40'41	0°-53'-47	conjunction	5037 Aug 14 10:40	24° Ω 36'06	0°-30'-37
minimum elong	5029 Jul 26 19:10	6° Ω 40'41	0°53'49	minimum elong	5037 Aug 14 10:40	24° Ω 36'06	0°30'39
max. Earth dist.	5029 Jul 27 06:39	6° Ω 41'46	30.85017 AU	max. Earth dist.	5037 Aug 14 17:40	24° Ω 36'45	30.91390 AU
retrograde	5029 Nov 10 10:21	9° Ω 14'04		retrograde	5037 Nov 28 14:26	27° Ω 08'31	
opposition	5030 Jan 28 06:20	7° Ω 49'18	0°-56'-5	opposition	5038 Feb 14 20:46	25° Ω 44'19	0°-31'-2
min. Earth dist.	5030 Jan 27 20:07	7° Ω 50'01	28.85262 AU	min. Earth dist.	5038 Feb 14 14:41	25° Ω 44'45	28.91876 AU
direct	5030 Apr 16 02:14	6° Ω 25'00		direct	5038 May 04 02:15	24° Ω 19'56	
conjunction	5030 Jul 29 09:10	8° Ω 55'18	0°-51'-8	conjunction	5038 Aug 17 00:44	26° Ω 50'45	0°-27'-28
minimum elong	5030 Jul 29 09:10	8° Ω 55'18	0°51'09	minimum elong	5038 Aug 17 00:44	26° Ω 50'45	0°27'29
max. Earth dist.	5030 Jul 29 21:00	8° Ω 56'24	30.85457 AU	max. Earth dist.	5038 Aug 17 05:57	26° Ω 51'14	30.92317 AU
retrograde	5030 Nov 12 21:45	11° Ω 28'31		retrograde	5038 Dec 01 02:44	29° Ω 23'02	
opposition	5031 Jan 30 17:11	10° Ω 03'46	0°-53'-12	opposition	5039 Feb 17 07:33	27° Ω 58'54	0°-27'-39
min. Earth dist.	5031 Jan 30 06:59	10° Ω 04'30	28.85731 AU	min. Earth dist.	5039 Feb 17 03:12	27° Ω 59'12	28.92757 AU
direct	5031 Apr 18 14:29	8° Ω 39'25		direct	5039 May 06 11:54	26° Ω 34'29	
conjunction	5031 Jul 31 22:59	11° Ω 09'44	0°-48'-24	conjunction	5039 Aug 19 14:57	29° Ω 05'21	0°-24'-17
minimum elong	5031 Jul 31 23:00	11° Ω 09'45	0°48'26	minimum elong	5039 Aug 19 14:57	29° Ω 05'21	0°24'18

max. Earth dist.	5039 Aug 19 19:49	29°05'48	30.93144 AU	behind sun begin	5046 Sep 04 08:40	14°04'52	
	5039 Sep 13 14:14	0°00'		behind sun end	5046 Sep 04 21:51	14°04'30	
retrograde	5039 Dec 03 13:27	1°00'37.29		max. Earth dist.	5046 Sep 04 14:24	14°04'22.26	30.98425 AU
opposition	5040 Feb 19 18:15	0°00'13.24	0°-24'-13	retrograde	5046 Dec 18 22:53	17°00'13.21	
min. Earth dist.	5040 Feb 19 14:22	0°00'13.41	28.93518 AU	asc. node	5047 Jan 28 02:54	16°00'47.22	
	5040 Feb 27 16:30	30°00'00.00		opposition	5047 Mar 06 19:17	15°00'49.31	0°00'22
direct	5040 May 08 00:17	28°00'48.57		min. Earth dist.	5047 Mar 06 19:48	15°00'49.29	28.98962 AU
	5040 Jul 14 15:08	0°00'		direct	5047 May 24 13:56	14°00'24.42	
conjunction	5040 Aug 21 04:55	1°00'19.50	0°-21'-3	conjunction	5047 Sep 07 04:49	16°00'55.42	0°02'04
minimum elong	5040 Aug 21 04:55	1°00'19.50	0°21'04	minimum elong	5047 Sep 07 04:49	16°00'55.42	0°02'03
max. Earth dist.	5040 Aug 21 07:37	1°00'20.04	30.93864 AU	behind sun begin	5047 Sep 06 22:13	16°00'55.07	
retrograde	5040 Dec 05 00:42	3°00'51.48		behind sun end	5047 Sep 07 11:25	16°00'56.17	
opposition	5041 Feb 21 04:51	2°00'27.45	0°-20'-45	max. Earth dist.	5047 Sep 07 02:47	16°00'55.35	30.99530 AU
min. Earth dist.	5041 Feb 21 02:06	2°00'27.57	28.94205 AU	retrograde	5047 Dec 21 10:54	19°00'26.29	
direct	5041 May 10 11:26	1°00'03.14		opposition	5048 Mar 08 05:40	18°00'02.43	0°03'55
conjunction	5041 Aug 23 18:56	3°00'34.08	0°-17'-49	min. Earth dist.	5048 Mar 08 07:29	18°00'02.36	29.00118 AU
minimum elong	5041 Aug 23 18:56	3°00'34.08	0°17'50	direct	5048 May 26 00:10	16°00'37.55	
max. Earth dist.	5041 Aug 23 21:51	3°00'34.24	30.94524 AU	conjunction	5048 Sep 08 18:22	19°00'08.58	0°05'23
retrograde	5041 Dec 07 11:05	6°00'05.55		minimum elong	5048 Sep 08 18:23	19°00'08.58	0°05'24
opposition	5042 Feb 23 15:26	4°00'41.54	0°-17'-16	behind sun begin	5048 Sep 08 12:01	19°00'08.24	
min. Earth dist.	5042 Feb 23 13:42	4°00'42.01	28.94846 AU	behind sun end	5048 Sep 09 00:44	19°00'09.32	
direct	5042 May 12 23:53	3°00'17.19		max. Earth dist.	5048 Sep 08 16:25	19°00'08.49	31.00714 AU
conjunction	5042 Aug 26 08:37	5°00'48.13	0°-14'-33	retrograde	5048 Dec 22 21:08	21°00'39.37	
minimum elong	5042 Aug 26 08:37	5°00'48.13	0°14'33	opposition	5049 Mar 10 15:57	20°00'15.58	0°07'27
behind sun begin	5042 Aug 26 06:00	5°00'47.59		min. Earth dist.	5049 Mar 10 18:04	20°00'15.49	29.01306 AU
behind sun end	5042 Aug 26 11:14	5°00'48.27		direct	5049 May 28 12:29	18°00'51.11	
max. Earth dist.	5042 Aug 26 09:38	5°00'48.18	30.95172 AU	conjunction	5049 Sep 11 07:51	21°00'22.16	0°08'41
retrograde	5042 Dec 09 23:41	8°00'19.50		minimum elong	5049 Sep 11 07:50	21°00'22.16	0°08'40
opposition	5043 Feb 26 01:54	6°00'55.49	0°-13'-46	behind sun begin	5049 Sep 11 02:09	21°00'21.46	
min. Earth dist.	5043 Feb 26 00:21	6°00'55.56	28.95501 AU	behind sun end	5049 Sep 11 13:32	21°00'22.47	
direct	5043 May 15 11:12	5°00'31.09		max. Earth dist.	5049 Sep 11 03:56	21°00'21.56	31.01900 AU
conjunction	5043 Aug 28 22:31	8°00'02.04	0°-11'-16	retrograde	5049 Dec 25 08:25	23°00'52.48	
minimum elong	5043 Aug 28 22:31	8°00'02.04	0°11'18	opposition	5050 Mar 13 02:17	22°00'29.14	0°10'58
behind sun begin	5043 Aug 28 17:45	8°00'01.39		min. Earth dist.	5050 Mar 13 05:23	22°00'29.01	29.02483 AU
behind sun end	5043 Aug 29 03:17	8°00'02.30		direct	5050 May 30 22:38	21°00'04.28	
max. Earth dist.	5043 Aug 28 23:35	8°00'02.10	30.95838 AU	conjunction	5050 Sep 13 21:25	23°00'35.36	0°11'57
retrograde	5043 Dec 12 10:39	10°00'33.29		minimum elong	5050 Sep 13 21:26	23°00'35.36	0°11'58
opposition	5044 Feb 28 12:17	9°00'09.30	0°-10'-14	behind sun begin	5050 Sep 13 16:59	23°00'35.13	
min. Earth dist.	5044 Feb 28 12:10	9°00'09.31	28.96198 AU	behind sun end	5050 Sep 14 01:53	23°00'36.00	
direct	5044 May 17 00:20	7°00'44.47		max. Earth dist.	5050 Sep 13 17:39	23°00'35.16	31.03033 AU
conjunction	5044 Aug 30 12:11	10°00'15.42	0°-7'-59	retrograde	5050 Dec 27 18:30	26°00'05.59	
minimum elong	5044 Aug 30 12:11	10°00'15.42	0°07'59	opposition	5051 Mar 15 12:44	24°00'42.31	0°14'29
behind sun begin	5044 Aug 30 06:19	10°00'15.11		min. Earth dist.	5051 Mar 15 17:04	24°00'42.13	29.03562 AU
behind sun end	5044 Aug 30 18:04	10°00'16.13		direct	5051 Jun 02 10:20	23°00'17.44	
max. Earth dist.	5044 Aug 30 11:59	10°00'15.41	30.96584 AU	conjunction	5051 Sep 16 10:58	25°00'48.54	0°15'13
retrograde	5044 Dec 13 23:38	12°00'46.56		minimum elong	5051 Sep 16 10:57	25°00'48.54	0°15'12
opposition	5045 Mar 01 22:38	11°00'22.59	0°-6'-42	behind sun begin	5051 Sep 16 09:09	25°00'48.45	
min. Earth dist.	5045 Mar 01 22:05	11°00'23.01	28.96994 AU	behind sun end	5051 Sep 16 12:46	25°00'49.04	
direct	5045 May 19 13:46	9°00'58.12		max. Earth dist.	5051 Sep 16 04:57	25°00'48.22	31.04063 AU
conjunction	5045 Sep 02 01:41	12°00'29.08	0°-4'-41	retrograde	5051 Dec 30 06:34	28°00'19.09	
minimum elong	5045 Sep 02 01:40	12°00'29.08	0°04'43	opposition	5052 Mar 16 22:59	26°00'55.45	0°17'58
behind sun begin	5045 Sep 01 19:13	12°00'28.34		min. Earth dist.	5052 Mar 17 03:42	26°00'55.25	29.04543 AU
behind sun end	5045 Sep 02 08:07	12°00'29.43		direct	5052 Jun 03 21:18	25°00'30.56	
max. Earth dist.	5045 Sep 02 01:12	12°00'29.07	30.97431 AU	conjunction	5052 Sep 18 00:32	28°00'02.08	0°18'27
retrograde	5045 Dec 16 10:25	15°00'00.13		minimum elong	5052 Sep 18 00:32	28°00'02.08	0°18'28
opposition	5046 Mar 04 09:06	13°00'36.18	0°-3'-10	max. Earth dist.	5052 Sep 17 18:21	28°00'01.35	31.04982 AU
min. Earth dist.	5046 Mar 04 10:00	13°00'36.14	28.97913 AU		5052 Nov 17 12:57	0°00'00.00	
direct	5046 May 22 01:04	12°00'11.30		retrograde	5052 Dec 31 16:53	0°00'32.14	
conjunction	5046 Sep 04 15:15	14°00'42.27	0°-1'-21		5053 Feb 14 19:04	30°00'00.00	
minimum elong	5046 Sep 04 15:15	14°00'42.27	0°01'22	opposition	5053 Mar 19 09:26	29°00'08.52	0°21'25
				min. Earth dist.	5053 Mar 19 15:49	29°00'08.25	29.05416 AU

direct	5053 Jun 06 10:07	27° 17 44'02		direct	5061 Jun 24 07:43	15° 2 23'45	
	5053 Sep 13 17:11	0° 2		conjunction	5061 Oct 08 20:59	17° 2 55'01	0°45'43
conjunction	5053 Sep 20 13:43	0° 2 15'14	0°21'40	minimum elong	5061 Oct 08 20:59	17° 2 55'01	0°45'43
minimum elong	5053 Sep 20 13:42	0° 2 15'14	0°21'39	max. Earth dist.	5061 Oct 08 09:16	17° 2 53'56	31.13627 AU
max. Earth dist.	5053 Sep 20 05:54	0° 2 14'32	31.05823 AU	retrograde	5062 Jan 20 16:48	20° 2 23'49	
retrograde	5054 Jan 03 05:10	2° 2 45'11		opposition	5062 Apr 08 05:09	19° 2 00'59	0°50'18
opposition	5054 Mar 21 19:40	1° 2 21'51	0°24'49	min. Earth dist.	5062 Apr 08 16:35	19° 2 00'11	29.14272 AU
min. Earth dist.	5054 Mar 22 01:54	1° 2 21'24	29.06221 AU	direct	5062 Jun 26 19:37	17° 2 36'04	
	5054 May 26 10:52	30° 8		conjunction	5062 Oct 11 09:39	20° 2 07'21	0°48'28
direct	5054 Jun 08 23:28	29° 17 56'59		minimum elong	5062 Oct 11 09:39	20° 2 07'21	0°48'29
	5054 Jun 22 10:04	0° 2		max. Earth dist.	5062 Oct 10 20:23	20° 2 06'08	31.14851 AU
conjunction	5054 Sep 23 03:02	2° 2 28'11	0°24'50	retrograde	5063 Jan 23 04:35	22° 2 36'02	
minimum elong	5054 Sep 23 03:01	2° 2 28'11	0°24'51	opposition	5063 Apr 10 15:16	21° 2 13'17	0°53'12
max. Earth dist.	5054 Sep 22 18:40	2° 2 27'25	31.06597 AU	min. Earth dist.	5063 Apr 11 02:32	21° 2 12'30	29.15456 AU
retrograde	5055 Jan 05 15:36	4° 2 57'57		direct	5063 Jun 29 07:46	19° 2 48'23	
opposition	5055 Mar 24 05:51	3° 2 34'40	0°28'12	conjunction	5063 Oct 13 22:26	22° 2 19'41	0°51'08
min. Earth dist.	5055 Mar 24 13:55	3° 2 34'06	29.06991 AU	minimum elong	5063 Oct 13 22:25	22° 2 19'41	0°51'08
direct	5055 Jun 11 10:56	2° 2 09'45		max. Earth dist.	5063 Oct 13 08:37	22° 2 18'24	31.15972 AU
conjunction	5055 Sep 25 16:14	4° 2 40'57	0°27'58	retrograde	5064 Jan 25 15:02	24° 2 48'15	
minimum elong	5055 Sep 25 16:14	4° 2 40'57	0°27'58	opposition	5064 Apr 12 01:45	23° 2 25'33	0°56'01
max. Earth dist.	5055 Sep 25 07:12	4° 2 40'07	31.07368 AU	min. Earth dist.	5064 Apr 12 14:49	23° 2 24'39	29.16532 AU
retrograde	5056 Jan 08 03:42	7° 2 10'33		direct	5064 Jun 30 18:55	22° 2 00'40	
opposition	5056 Mar 25 16:00	5° 2 47'17	0°31'31	conjunction	5064 Oct 15 10:55	24° 2 31'57	0°53'44
min. Earth dist.	5056 Mar 25 23:49	5° 2 46'44	29.07765 AU	minimum elong	5064 Oct 15 10:55	24° 2 31'57	0°53'45
direct	5056 Jun 13 00:35	4° 2 22'20		max. Earth dist.	5064 Oct 14 20:21	24° 2 30'36	31.16986 AU
conjunction	5056 Sep 27 05:09	6° 2 53'32	0°31'04	retrograde	5065 Jan 27 02:52	27° 2 00'23	
minimum elong	5056 Sep 27 05:08	6° 2 53'32	0°31'05	opposition	5065 Apr 14 12:04	25° 2 37'44	0°58'45
max. Earth dist.	5056 Sep 26 19:05	6° 2 52'37	31.08156 AU	min. Earth dist.	5065 Apr 15 01:02	25° 2 36'49	29.17480 AU
retrograde	5057 Jan 09 15:08	9° 2 22'58		direct	5065 Jul 03 09:04	24° 2 12'49	
opposition	5057 Mar 28 02:13	7° 2 59'44	0°34'48	conjunction	5065 Oct 17 23:25	26° 2 44'05	0°56'15
min. Earth dist.	5057 Mar 28 11:09	7° 2 59'07	29.08602 AU	minimum elong	5065 Oct 17 23:25	26° 2 44'05	0°56'15
direct	5057 Jun 15 11:40	6° 2 34'45		max. Earth dist.	5065 Oct 17 07:35	26° 2 42'38	31.17871 AU
conjunction	5057 Sep 29 18:04	9° 2 05'57	0°34'06	retrograde	5066 Jan 29 14:06	29° 2 12'23	
minimum elong	5057 Sep 29 18:04	9° 2 05'57	0°34'06	opposition	5066 Apr 16 22:25	27° 2 49'46	1°01'23
max. Earth dist.	5057 Sep 29 08:17	9° 2 05'03	31.09037 AU	min. Earth dist.	5066 Apr 17 12:43	27° 2 48'46	29.18324 AU
retrograde	5058 Jan 12 00:22	11° 2 35'13		direct	5066 Jul 05 20:49	26° 2 24'50	
opposition	5058 Mar 30 12:18	10° 2 12'03	0°38'01	conjunction	5066 Oct 20 11:53	28° 2 56'04	0°58'41
min. Earth dist.	5058 Mar 30 21:12	10° 2 11'25	29.09535 AU	minimum elong	5066 Oct 20 11:53	28° 2 56'04	0°58'42
direct	5058 Jun 18 00:25	8° 2 47'03		max. Earth dist.	5066 Oct 19 20:00	28° 2 54'36	31.18661 AU
conjunction	5058 Oct 02 06:48	11° 2 18'14	0°37'06		5066 Nov 19 03:03	0° 0	
minimum elong	5058 Oct 02 06:48	11° 2 18'14	0°37'06	retrograde	5067 Jan 31 23:32	1° 0 24'13	
max. Earth dist.	5058 Oct 01 19:33	11° 2 17'12	31.10033 AU	opposition	5067 Apr 19 08:44	0° 0 01'37	1°03'56
retrograde	5059 Jan 14 10:58	13° 2 47'22		min. Earth dist.	5067 Apr 19 23:23	0° 0 00'36	29.19061 AU
opposition	5059 Apr 01 22:30	12° 2 24'16	0°41'11		5067 Apr 20 07:54	30° 8	
min. Earth dist.	5059 Apr 02 07:47	12° 2 23'37	29.10602 AU	direct	5067 Jul 08 10:09	28° 2 36'40	
direct	5059 Jun 20 10:34	10° 2 59'16			5067 Sep 21 09:00	0° 0	
conjunction	5059 Oct 04 19:41	13° 2 30'29	0°40'02	max. Earth dist.	5067 Oct 22 06:34	1° 0 06'14	31.19363 AU
minimum elong	5059 Oct 04 19:41	13° 2 30'29	0°40'01	conjunction	5067 Oct 23 00:07	1° 0 07'51	1°01'02
max. Earth dist.	5059 Oct 04 09:08	13° 2 29'30	31.11154 AU	minimum elong	5067 Oct 23 00:06	1° 0 07'51	1°01'02
retrograde	5060 Jan 16 20:21	15° 2 59'29		retrograde	5068 Feb 03 10:12	3° 0 35'51	
opposition	5060 Apr 03 08:39	14° 2 36'28	0°44'18	opposition	5068 Apr 20 19:01	2° 0 13'16	1°06'24
min. Earth dist.	5060 Apr 03 18:43	14° 2 35'45	29.11771 AU	min. Earth dist.	5068 Apr 21 10:12	2° 0 12'13	29.19750 AU
direct	5060 Jun 21 21:24	13° 2 11'29		direct	5068 Jul 09 21:15	0° 0 48'17	
conjunction	5060 Oct 06 08:20	15° 2 42'43	0°42'54	conjunction	5068 Oct 24 12:20	3° 0 19'26	1°03'17
minimum elong	5060 Oct 06 08:20	15° 2 42'43	0°42'55	minimum elong	5068 Oct 24 12:20	3° 0 19'26	1°03'18
max. Earth dist.	5060 Oct 05 20:15	15° 2 41'36	31.12374 AU	max. Earth dist.	5068 Oct 23 19:30	3° 0 17'53	31.20036 AU
retrograde	5061 Jan 18 07:33	18° 2 11'38		retrograde	5069 Feb 04 19:01	5° 0 47'17	
opposition	5061 Apr 05 18:49	16° 2 48'42	0°47'20	opposition	5069 Apr 23 05:26	4° 0 24'44	1°08'45
min. Earth dist.	5061 Apr 06 04:44	16° 2 48'00	29.13025 AU	min. Earth dist.	5069 Apr 23 21:24	4° 0 23'37	29.20426 AU

direct	5069 Jul 12 09:00	2°M.59'43		direct	5077 Jul 30 06:36	20°M.30'35	
max. Earth dist.	5069 Oct 26 05:58	5°M.29'08	31.20729 AU				
conjunction	5069 Oct 27 00:07	5°M.30'49	1°05'26	conjunction	5077 Nov 13 21:49	23°M.01'41	1°19'02
minimum elong	5069 Oct 27 00:07	5°M.30'49	1°05'26	minimum elong	5077 Nov 13 21:48	23°M.01'41	1°19'02
retrograde	5070 Feb 07 05:20	7°M.58'34		max. Earth dist.	5077 Nov 13 01:52	22°M.59'50	31.27462 AU
opposition	5070 Apr 25 15:42	6°M.36'02	1°11'01	retrograde	5078 Feb 24 16:33	25°M.28'52	
min. Earth dist.	5070 Apr 26 07:12	6°M.34'57	29.21153 AU	opposition	5078 May 13 03:52	24°M.06'49	1°25'04
direct	5070 Jul 14 19:58	5°M.10'59		min. Earth dist.	5078 May 13 23:05	24°M.05'29	29.27789 AU
				direct	5078 Aug 01 19:02	22°M.42'02	
				max. Earth dist.	5078 Nov 15 11:43	25°M.11'05	31.27929 AU
conjunction	5070 Oct 29 12:08	7°M.42'04	1°07'30				
minimum elong	5070 Oct 29 12:08	7°M.42'04	1°07'31	conjunction	5078 Nov 16 09:13	25°M.13'05	1°20'14
max. Earth dist.	5070 Oct 28 18:40	7°M.40'27	31.21482 AU	minimum elong	5078 Nov 16 09:13	25°M.13'05	1°20'15
retrograde	5071 Feb 09 13:44	10°M.09'42		retrograde	5079 Feb 27 02:27	27°M.40'11	
opposition	5071 Apr 28 02:03	8°M.47'13	1°13'10	opposition	5079 May 15 14:25	26°M.18'09	1°26'18
min. Earth dist.	5071 Apr 28 18:37	8°M.46'03	29.21955 AU	min. Earth dist.	5079 May 16 09:21	26°M.16'50	29.28195 AU
direct	5071 Jul 17 07:17	7°M.22'11		direct	5079 Aug 04 06:32	24°M.53'20	
conjunction	5071 Oct 31 23:56	9°M.53'16	1°09'28	conjunction	5079 Nov 18 20:39	27°M.24'21	1°21'19
minimum elong	5071 Oct 31 23:56	9°M.53'16	1°09'28	minimum elong	5079 Nov 18 20:39	27°M.24'21	1°21'20
max. Earth dist.	5071 Oct 31 05:35	9°M.51'33	31.22339 AU	max. Earth dist.	5079 Nov 17 23:40	27°M.22'24	31.28269 AU
retrograde	5072 Feb 12 00:49	12°M.20'48		retrograde	5080 Feb 29 10:14	29°M.51'21	
opposition	5072 Apr 29 12:23	10°M.58'22	1°15'12	opposition	5080 May 17 01:16	28°M.29'19	1°27'24
min. Earth dist.	5072 Apr 30 04:05	10°M.57'17	29.22858 AU	min. Earth dist.	5080 May 17 21:26	28°M.27'55	29.28489 AU
direct	5072 Jul 18 18:38	9°M.33'23		direct	5080 Aug 05 17:45	27°M.04'29	
				max. Earth dist.	5080 Nov 19 09:49	29°M.33'23	31.28534 AU
conjunction	5072 Nov 02 11:37	12°M.04'28	1°11'20				
minimum elong	5072 Nov 02 11:37	12°M.04'28	1°11'21	conjunction	5080 Nov 20 07:38	29°M.35'24	1°22'18
max. Earth dist.	5072 Nov 01 17:27	12°M.02'47	31.23275 AU	minimum elong	5080 Nov 20 07:38	29°M.35'24	1°22'19
retrograde	5073 Feb 13 10:55	14°M.31'57			5080 Dec 01 09:12	0° \nearrow	
opposition	5073 May 01 22:55	13°M.09'36	1°17'08	retrograde	5081 Mar 02 20:34	2° \nearrow 02'19	
min. Earth dist.	5073 May 02 15:49	13°M.08'26	29.23832 AU	opposition	5081 May 19 11:56	0° \nearrow 40'15	1°28'22
direct	5073 Jul 21 05:07	11°M.44'40		min. Earth dist.	5081 May 20 07:15	0° \nearrow 38'56	29.28728 AU
					5081 Jun 13 20:28	30° \searrow M.	
conjunction	5073 Nov 04 23:19	14°M.15'46	1°13'05	direct	5081 Aug 08 04:53	29°M.15'23	
minimum elong	5073 Nov 04 23:18	14°M.15'45	1°13'06		5081 Sep 30 21:28	0° \nearrow	
max. Earth dist.	5073 Nov 04 05:00	14°M.14'04	31.24267 AU				
	5073 Nov 25 02:34	15°M.		conjunction	5081 Nov 22 18:40	1° \nearrow 46'14	1°23'09
retrograde	5074 Feb 15 22:38	16°M.43'11		minimum elong	5081 Nov 22 18:40	1° \nearrow 46'14	1°23'10
opposition	5074 May 04 09:12	15°M.20'56	1°18'58	max. Earth dist.	5081 Nov 21 21:05	1° \nearrow 44'14	31.28757 AU
min. Earth dist.	5074 May 05 01:44	15°M.19'47	29.24815 AU	retrograde	5082 Mar 05 05:37	4° \nearrow 13'04	
	5074 May 17 02:13	15° \searrow M.		opposition	5082 May 21 22:35	2° \nearrow 50'59	1°29'13
direct	5074 Jul 23 18:39	13°M.56'02		min. Earth dist.	5082 May 22 18:59	2° \nearrow 49'35	29.28968 AU
	5074 Sep 26 17:39	15°M.		direct	5082 Aug 10 15:45	1° \nearrow 26'05	
				max. Earth dist.	5082 Nov 24 08:15	3° \nearrow 54'53	31.29020 AU
conjunction	5074 Nov 07 11:02	16°M.27'10	1°14'45				
minimum elong	5074 Nov 07 11:01	16°M.27'10	1°14'46	conjunction	5082 Nov 25 05:35	3° \nearrow 56'52	1°23'53
max. Earth dist.	5074 Nov 06 15:50	16°M.25'23	31.25224 AU	minimum elong	5082 Nov 25 05:35	3° \nearrow 56'52	1°23'54
retrograde	5075 Feb 18 10:17	18°M.54'33		retrograde	5083 Mar 07 16:04	6° \nearrow 23'37	
opposition	5075 May 06 19:48	17°M.32'22	1°20'40	opposition	5083 May 24 09:20	5° \nearrow 01'31	1°29'56
min. Earth dist.	5075 May 07 13:22	17°M.31'09	29.25748 AU	min. Earth dist.	5083 May 25 04:48	5° \nearrow 00'11	29.29257 AU
direct	5075 Jul 26 06:08	16°M.07'31		direct	5083 Aug 13 05:10	3° \nearrow 36'36	
conjunction	5075 Nov 09 22:43	18°M.38'39	1°16'17	conjunction	5083 Nov 27 16:19	6° \nearrow 07'20	1°24'30
minimum elong	5075 Nov 09 22:43	18°M.38'39	1°16'17	minimum elong	5083 Nov 27 16:19	6° \nearrow 07'20	1°24'31
max. Earth dist.	5075 Nov 09 03:45	18°M.36'54	31.26101 AU	max. Earth dist.	5083 Nov 26 18:44	6° \nearrow 05'20	31.29347 AU
retrograde	5076 Feb 20 19:52	21°M.05'59		retrograde	5084 Mar 09 02:56	8° \nearrow 34'03	
opposition	5076 May 08 06:26	19°M.43'52	1°22'15	opposition	5084 May 25 20:11	7° \nearrow 11'57	1°30'32
min. Earth dist.	5076 May 09 00:15	19°M.42'38	29.26561 AU	min. Earth dist.	5084 May 26 15:54	7° \nearrow 10'36	29.29646 AU
direct	5076 Jul 27 19:05	18°M.19'03		direct	5084 Aug 14 16:02	5° \nearrow 47'03	
				max. Earth dist.	5084 Nov 28 06:31	8° \nearrow 15'50	31.29786 AU
conjunction	5076 Nov 11 10:17	20°M.50'11	1°17'43				
minimum elong	5076 Nov 11 10:16	20°M.50'11	1°17'44	conjunction	5084 Nov 29 03:06	8° \nearrow 17'44	1°24'59
max. Earth dist.	5076 Nov 10 13:44	20°M.48'17	31.26849 AU	minimum elong	5084 Nov 29 03:06	8° \nearrow 17'44	1°25'01
retrograde	5077 Feb 22 07:22	23°M.17'26		retrograde	5085 Mar 11 12:30	10° \nearrow 44'25	
opposition	5077 May 10 17:06	21°M.55'22	1°23'43	opposition	5085 May 28 07:00	9° \nearrow 22'21	1°31'00
min. Earth dist.	5077 May 11 11:19	21°M.54'06	29.27255 AU	min. Earth dist.	5085 May 29 02:19	9° \nearrow 21'01	29.30119 AU

direct	5085 Aug 17 04:45	7° 2 57'29		conjunction	5093 Dec 19 01:31	27° 2 53'12	1°23'55
				minimum elong	5093 Dec 19 01:31	27° 2 53'12	1°23'56
conjunction	5085 Dec 01 13:38	10° 2 28'09	1°25'22		5094 Feb 25 00:54	0° 3	
minimum elong	5085 Dec 01 13:38	10° 2 28'09	1°25'22	retrograde	5094 Mar 31 07:58	0° 3 19'52	
max. Earth dist.	5085 Nov 30 16:13	10° 2 26'10	31.30296 AU		5094 May 05 12:29	30° R 2	
retrograde	5086 Mar 14 00:16	12° 2 54'49		opposition	5094 Jun 17 11:17	28° 2 57'55	1°29'17
opposition	5086 May 30 17:50	11° 2 32'48	1°31'20	min. Earth dist.	5094 Jun 18 06:53	28° 2 56'35	29.31835 AU
min. Earth dist.	5086 May 31 12:56	11° 2 31'29	29.30649 AU	direct	5094 Sep 06 12:52	27° 2 33'17	
direct	5086 Aug 19 16:20	10° 2 07'59			5094 Dec 19 20:56	0° 3	
max. Earth dist.	5086 Dec 03 04:08	12° 2 36'46	31.30820 AU				
				conjunction	5094 Dec 21 11:29	0° 3 03'36	1°23'12
conjunction	5086 Dec 04 00:22	12° 2 38'39	1°25'36	minimum elong	5094 Dec 21 11:29	0° 3 03'36	1°23'13
minimum elong	5086 Dec 04 00:22	12° 2 38'39	1°25'37	max. Earth dist.	5094 Dec 20 14:27	0° 3 01'38	31.31669 AU
retrograde	5087 Mar 16 09:33	15° 2 05'18		retrograde	5095 Apr 02 19:57	2° 3 30'15	
opposition	5087 Jun 02 04:48	13° 2 43'20	1°31'31	opposition	5095 Jun 19 22:34	1° 3 08'16	1°28'27
min. Earth dist.	5087 Jun 03 00:33	13° 2 41'59	29.31154 AU	min. Earth dist.	5095 Jun 20 17:30	1° 3 06'59	29.31686 AU
direct	5087 Aug 22 04:45	12° 2 18'35			5095 Aug 07 10:45	30° R 2	
				direct	5095 Sep 09 01:09	29° 2 43'38	
conjunction	5087 Dec 06 10:56	14° 2 49'14	1°25'44		5095 Oct 11 00:26	0° 3	
minimum elong	5087 Dec 06 10:56	14° 2 49'14	1°25'44				
max. Earth dist.	5087 Dec 05 13:41	14° 2 47'15	31.31306 AU	conjunction	5095 Dec 23 21:33	2° 3 13'54	1°22'22
retrograde	5088 Mar 17 20:10	17° 2 15'53		minimum elong	5095 Dec 23 21:33	2° 3 13'54	1°22'22
opposition	5088 Jun 03 15:52	15° 2 53'58	1°31'35	max. Earth dist.	5095 Dec 23 02:11	2° 3 12'05	31.31553 AU
min. Earth dist.	5088 Jun 04 10:51	15° 2 52'40	29.31606 AU	retrograde	5096 Apr 04 05:22	4° 3 40'33	
direct	5088 Aug 23 15:58	14° 2 29'16		opposition	5096 Jun 21 10:04	3° 3 18'33	1°27'30
				min. Earth dist.	5096 Jun 22 05:01	3° 3 17'16	29.31614 AU
conjunction	5088 Dec 07 21:28	16° 2 59'54	1°25'44	direct	5096 Sep 10 13:52	1° 3 53'57	
minimum elong	5088 Dec 07 21:28	16° 2 59'54	1°25'45	max. Earth dist.	5096 Dec 24 11:36	4° 3 22'19	31.31541 AU
max. Earth dist.	5088 Dec 07 01:02	16° 2 57'59	31.31699 AU				
retrograde	5089 Mar 20 04:41	19° 2 26'34		conjunction	5096 Dec 25 07:15	4° 3 24'09	1°21'25
opposition	5089 Jun 06 03:07	18° 2 04'41	1°31'31	minimum elong	5096 Dec 25 07:15	4° 3 24'09	1°21'25
min. Earth dist.	5089 Jun 06 23:11	18° 2 03'18	29.31945 AU	retrograde	5097 Apr 06 15:43	6° 3 50'50	
direct	5089 Aug 26 02:56	16° 2 40'01		opposition	5097 Jun 23 21:24	5° 3 28'51	1°26'25
max. Earth dist.	5089 Dec 09 10:50	19° 2 08'38	31.31980 AU	min. Earth dist.	5097 Jun 24 14:54	5° 3 27'39	29.31648 AU
				direct	5097 Sep 13 01:14	4° 3 04'16	
conjunction	5089 Dec 10 08:00	19° 2 10'37	1°25'37				
minimum elong	5089 Dec 10 08:00	19° 2 10'37	1°25'37	conjunction	5097 Dec 27 17:13	6° 3 34'27	1°20'20
retrograde	5090 Mar 22 15:16	21° 2 37'17		minimum elong	5097 Dec 27 17:13	6° 3 34'27	1°20'21
opposition	5090 Jun 08 14:07	20° 2 15'25	1°31'20	max. Earth dist.	5097 Dec 26 22:52	6° 3 32'44	31.31614 AU
min. Earth dist.	5090 Jun 09 09:20	20° 2 14'06	29.32152 AU	retrograde	5098 Apr 09 00:22	9° 3 01'11	
direct	5090 Aug 28 13:50	18° 2 50'46		opposition	5098 Jun 26 08:51	7° 3 39'13	1°25'12
				min. Earth dist.	5098 Jun 27 02:52	7° 3 37'59	29.31751 AU
conjunction	5090 Dec 12 18:37	21° 2 21'21	1°25'22	direct	5098 Sep 15 12:32	6° 3 14'42	
minimum elong	5090 Dec 12 18:37	21° 2 21'21	1°25'23	max. Earth dist.	5098 Dec 29 08:44	8° 3 43'08	31.31748 AU
max. Earth dist.	5090 Dec 11 21:27	21° 2 19'22	31.32112 AU				
retrograde	5091 Mar 25 00:54	23° 2 48'01		conjunction	5098 Dec 30 03:03	8° 3 44'51	1°19'09
opposition	5091 Jun 11 01:29	22° 2 26'10	1°31'00	minimum elong	5098 Dec 30 03:03	8° 3 44'51	1°19'10
min. Earth dist.	5091 Jun 11 21:49	22° 2 24'47	29.32222 AU	retrograde	5099 Apr 11 11:15	11° 3 11'38	
direct	5091 Aug 31 00:33	21° 2 01'32		opposition	5099 Jun 28 20:23	9° 3 49'42	1°23'52
max. Earth dist.	5091 Dec 14 08:03	23° 2 30'06	31.32120 AU	min. Earth dist.	5099 Jun 29 12:58	9° 3 48'34	29.31881 AU
				direct	5099 Sep 17 23:44	8° 3 25'15	
conjunction	5091 Dec 15 04:59	23° 2 32'03	1°25'00				
minimum elong	5091 Dec 15 04:59	23° 2 32'03	1°25'01	conjunction	5100 Jan 01 12:49	10° 3 55'21	1°17'51
retrograde	5092 Mar 26 11:23	25° 2 58'43		minimum elong	5100 Jan 01 12:49	10° 3 55'21	1°17'52
opposition	5092 Jun 12 12:45	24° 2 36'51	1°30'33	max. Earth dist.	5099 Dec 31 19:01	10° 3 53'41	31.31867 AU
min. Earth dist.	5092 Jun 13 08:20	24° 2 35'31	29.32160 AU	retrograde	5100 Apr 13 20:44	13° 3 22'13	
direct	5092 Sep 01 13:26	23° 2 12'14		opposition	5100 Jul 01 08:12	12° 3 00'18	1°22'25
				min. Earth dist.	5100 Jul 02 01:26	11° 3 59'07	29.31985 AU
conjunction	5092 Dec 16 15:17	25° 2 42'41	1°24'31	direct	5100 Sep 20 09:59	10° 3 35'55	
minimum elong	5092 Dec 16 15:17	25° 2 42'41	1°24'33				
max. Earth dist.	5092 Dec 15 17:51	25° 2 40'41	31.32011 AU	conjunction	5101 Jan 03 22:43	13° 3 05'59	1°16'26
retrograde	5093 Mar 28 22:29	28° 2 09'21		minimum elong	5101 Jan 03 22:43	13° 3 05'59	1°16'27
opposition	5093 Jun 15 00:00	26° 2 47'27	1°29'59	max. Earth dist.	5101 Jan 03 05:37	13° 3 04'22	31.31943 AU
min. Earth dist.	5093 Jun 15 19:58	26° 2 46'05	29.32023 AU				
direct	5093 Sep 03 23:48	25° 2 22'49					
max. Earth dist.	5093 Dec 18 05:08	27° 2 51'18	31.31848 AU				